XVIII. *Contributions to Terrestrial Magnetism.—No. VIII.*

By Lieut.-Colonel EDWARD SABINE, *R.A., For. Sec. R.S.*

Received June 15,—Read June 18, 1846.

Containing a Magnetic Survey of the Southern Hemisphere between the Meridians of 0° and 125° East, and Parallels of −20° and −70°.

THE Antarctic Expedition, under Captain Sir JAMES CLARK ROSS, R.N., has furnished the materials for maps of the three magnetic elements in the high latitudes of the southern hemisphere for nearly two-thirds of its circumference. The first and second portions of the results, comprising between the meridians of 125° and 300°, have already been communicated to the Royal Society, and are contained in the Vth and VIth Numbers of these Contributions*; a third portion, comprehending between the meridians of 300° and 360°, is in preparation and will shortly be laid before the Society. In order to complete the magnetic survey of the high latitudes of the southern hemisphere as far as they are accessible, there remained the portion between the longitudes of 0° and 125°, or thereabouts. The tracks of vessels in the employ of the enterprising merchants, the Messrs. ENDERBY, had shown that no difficulties of serious importance obstructed the navigation of the ocean in the vicinity of the Antarctic Circle between the meridians specified: and there appeared to be little reason to doubt, that a vessel, despatched from the Cape of Good Hope, might accomplish this remaining portion of the survey in a single season, without encountering any particular risk.

Lieut. CLERK, of the Royal Artillery, had been attached by Lord VIVIAN, Master-General of the Ordnance, to the Magnetic Observatory at the Cape of Good Hope, with the express view of being engaged in a magnetic survey, either of the colony itself, or of such portion of the globe as might be conveniently accessible from it; and on his passage from England to the Cape had had an opportunity of practising with the instruments employed in a magnetic survey conducted on the ocean. The completion of the survey of the high latitudes appeared the most important service which Lieut. CLERK could render to magnetical science; and on its being proposed to him, he most readily undertook it.

In June 1844 the subject was brought under the consideration of the Committee of Physics of the Royal Society, by a letter from myself to Sir JOHN F. W. HERSCHEL, Bart., Chairman of the Committee, accompanied by one addressed by Sir JOHN HERSCHEL to the Committee, expressing his earnest hope that the measures suggested for the

* Philosophical Transactions, 1843, Art. X., and 1844, Art. VII.

completion of the survey might receive the attention which they appeared to him to merit. These letters were submitted by the Committee to the Council of the Royal Society, with a recommendation that an application should be made by the President and Council to the Lords Commissioners of the Admiralty, to authorize the completion of the southern survey in the manner suggested.

The Board of Admiralty having been pleased to accede to this request, the "Pagoda," a bark of 360 tons, was hired at the Cape of Good Hope by the Admiral commanding on the station, and was fitted for a voyage of some months duration, receiving a complement of four officers and thirty-eight seamen from the flag-ship. Lieut. T. E. L. Moore, of the Royal Navy, who had been one of the officers of Her Majesty's ship Terror in the Antarctic Expedition, and was consequently accustomed to the navigation of the high latitudes, as well as practised in magnetic observations, (having taken a very prominent share in those of Her Majesty's ship Terror, recorded in Nos. V. and VI. of these Contributions,) was selected to command the Pagoda, and instructed to cooperate with Lieut. Clerk, and to give him every assistance and support in the execution of the service on which they were jointly employed. At the time of his appointment, Lieut. Moore was serving in the Caledonia at Lisbon, and some little delay occurred in his recall, and also in his subsequent departure from England, in consequence of which he did not join the Pagoda at the Cape until the 4th of January, when she had been some days ready for sea.

It may be useful to officers desirous of making magnetic observations on board ship, to be acquainted with the precautions which, at the period in question, were deemed desirable for the employment of magnetic instruments on board ship under the most advantageous conditions, and for eliminating the disturbing effects of the ship's iron: a copy of the instructions with which Lieut. Clerk was furnished is therefore subjoined:—

Instructions for Lieut. H. Clerk, *R.A., on points connected with the Magnetic Observations on Board Ship.*

"1. *Influence of the Ship's Iron.*—Before the ship is fitted, you had better select, in concert with the naval officer appointed to command her, suitable positions for the standard compass and for your Fox. They should both be on the midship line of the ship; the standard compass sufficiently high to see well over the bulwarks when taking azimuths: the Fox lower for the sake of steadiness: it is generally found convenient to use the Fox a few feet in front of the standard. When the positions have been chosen, have any iron that may be near them removed, (as far as can conveniently be done,) and do not let any fresh iron be placed within at least six feet of either of them.

"When the ship is perfectly ready for sea, take a day for the determination of the effect of the ship's iron on the standard compass. You are already acquainted with the usual process of doing this, and are furnished with the printed instructions issued

by the Admiralty; therefore I do not enter into further details on this point, except to suggest that you should be particularly careful that the ship's boats, davits, &c. are all in the positions they will occupy at sea; and that it will be quite sufficient for your purpose that the deviation should be tried on the sixteen principal points of the compass, instead of on thirty-two, as is sometimes done.

"2. Whilst engaged with the standard compass, have a second compass, of which the compass error (meaning thereby the index error) is known, placed in the gimball table of your Fox, and observe generally (by means of the lubber-line) whether the effect of the ship's iron is nearly the same at the two positions, viz. at the position of the standard compass and at that of the Fox. Observe particularly whether the points of no deviation are the same. It simplifies matters greatly that they should be so, and that at both positions the points of no deviation should be nearly the north and south points. This they will most probably be in a vessel which will not have much iron near either position; but it will be advantageous, when first choosing the positions, to try roughly,—by means of a couple of compasses, one in the proposed position of the standard compass, and the other in that of the Fox,—whether they point alike when the ship's head is either north or south. By interchanging the compasses in these positions, you will prevent any deception which might arise from compass errors.

"The observations which have been described will give you the value of the constants a and b, for the corrections of all the declinations observed on board throughout the voyage, and you will probably find that they will give you work enough for one day.

"3. I shall suppose therefore that you take a second day for the determination of the four constants at the position of the Fox. For this you will require the inclination and intensity with the ship's head on the same sixteen points as before, employing a deflector for the intensity on this occasion, in preference to weights, as more convenient. You will find of course that the points of no deviation with the compass become the points of extreme deviation of the inclination and intensity; for convenience I shall suppose them north and south points. Having completed the observations with the Fox, remove it and observe the horizontal intensity with the head successively north, east, south and west, and north again*, placing the apparatus for the horizontal intensity on the gimball stand of the Fox. This will give you a and b for that position more satisfactorily than the observations of the Fox; from these latter, with the shore observations, you will have c and d.

"The formulæ applicable to all the proceedings which have been described, will be found in Mr. Smith's Memorandum in No. V. of the Contributions to Terrestrial Magnetism. But besides the induced magnetism to which these formulæ refer, the

* "These are compass points, the compass being supposed in strictness to be placed on the spot of the gimball table; if a compass placed at this spot has been found to agree with the standard compass, the latter gives *directly* the required azimuth of the ship's head."

iron of a ship is found sometimes to exercise upon its compasses a magnetic influence of a distinct character, to which it may become in some instances desirable to give a separate consideration. This influence may be either from permanent magnetism strictly so called, or from a polarity which is temporarily retained, and undergoes alterations consequent upon changes in the inducing action in which it originated, but following after them at a greater or less interval of time. This additional magnetic force may be represented by additional symbols, P, Q and R, *i. e.* the force resolved along the principal section of the ship, transversely to it, and in the vertical direction.

"The alterations which the introduction of this force makes in Mr. SMITH's formula are stated in a second memorandum now printing in No. VI. of the Contributions, a copy of which will be in your hands before you sail.

"This memorandum furnishes equations by which all the constants may be determined by observations in different magnetic latitudes,—of the horizontal force on the *four* principal points,—and of the dip on the *two* principal, together with the dip and horizontal force observed on shore or on the ice. These are part of the observations already directed.

"4. The observations described in No. 3 must be repeated on the return to the Cape at the conclusion of the voyage, before any change has been made in the iron of the ship. If polarity due to the inducing action of a higher magnetic latitude has been retained, the observations on the return will be found to differ from those made before you sailed. If the disturbing influence of the ship's iron be solely the effect either of instantly induced magnetism, or of permanent magnetism strictly so called, the observations will agree with those made before the departure of the vessel.

"5. If in the course of the voyage you should anchor in any port in a high latitude, at Enderby's Land for example, or at the Adelie Land of d'Urville, it will be extremely desirable to repeat the same observations. Whenever a choice exists between the shore and fixed ice, as a place for observation out of the influence of the ship's iron, always prefer the fixed ice.

"6. The approximate value of a, the most important of the constants, may be obtained on board at any time during the voyage when the weather is sufficiently favourable, by azimuths at the north or south points and at the east or west points for the position of the standard compass, and by the horizontal intensity observed on the north and south points for the position of the Fox. If HANSTEEN's needles are used for the latter purpose, and n, s, be the number of vibrations at north and south in a certain time, commencing at the same arc, and performed in a nearly uniform temperature, then $\frac{n}{s} = \tan \lambda$, and $\cos 2\lambda = a \tan \theta$; also if $\Delta =$ the deviation when $\zeta' = 90°$,

$$\Delta = 90° - 2\lambda.$$

"7. The horizontal intensity at the north and south points should be observed on

board *frequently*; those on the north, south, east and west points, *occasionally*; and the dip and horizontal intensity on shore or on the ice, with corresponding observations on board, as *often as possible.*

"8. *Index Correction.*—The most convenient mode of employing Mr. Fox's apparatus at sea being to use it with the face of the circle in one direction only (*i. e.* east or west, I shall here assume it *east*), the index correction with the face east must be sought, by a comparison of the Inclinations observed in that position of the instrument on shore and on fixed ice, with the true Inclinations determined with needles whose poles may be reversed and a complete observation made with them. As the index correction is liable to vary as a function of the Inclination, it should be determined in different Inclinations, and for this purpose it will be desirable to obtain at least one determination in a high latitude.

"When observing *on shore* or *on the ice* for the index correction with the face east, do not omit to observe with the face west also, as the mean index correction is useful in showing the kind of separation which exists between the centre of gravity and the point of suspension in the needle for which it is determined. Mr. Fox's apparatus is furnished with three needles; one to be used when the poles are required to be reversed; the magnetism of the other two should be preserved from change if possible; it has been found a convenient practice to employ one of the latter always as the mounted needle, and the other as a deflector.

"9. *Comparison of the Weights and Deflectors.*—Experience has shown that the intensity may be more conveniently and satisfactorily determined on board ship by the use of deflectors than by constant weights.

"It is necessary however that the 'equivalent weights' of the deflectors employed should be carefully ascertained. Besides the table which you will form for this purpose in the manner practised by Mr. Fox, it will be necessary to have comparisons between the angles of deflection produced by the deflectors and the constant weights at the Cape before and after the voyage, and on any opportunity which you may have in a high latitude either on shore or on the ice. You may also get occasional comparisons *on board* in very favourable weather.

"In the choice of constant weights to be employed during the voyage, use none that give a less angle of deflection than 15°. In the observations at the Cape, as your base station, make a double series (*i. e.* the same observations repeated on two separate days) both *before and after* the voyage.

"10. *Azimuths.*—You will find it a convenient practice to deduce your azimuths from the *hour angle*, instead of from the altitude, which is the more usual custom. First take the altitudes which will give you the hour angle corresponding to the time by chronometer (at least until you *materially* change your geographical position); and as soon as you have completed this observation, take the sun's azimuth, noting the time of observation by chronometer; the hour angle will then give you the true azimuth. Blank forms are sent suited to this mode of observation.

"11. *General Remarks.*—You cannot do better than follow the admirable example of the Antarctic Expedition, in observing the three magnetic elements on board every day on which the weather will permit you to use the instruments.

"12. Frequent reference has been made in these instructions to the importance of at least one opportunity of observing on shore or on the ice in a high latitude, for various objects connected with the reduction and correction of the whole body of magnetic observations made during the voyage. If Enderby's Land, or land connected with it, should not be accessible, it is by no means necessary that the ship should *enter* the ice in order to give you the opportunity of landing on a piece of ice of sufficient magnitude. A favourable day being chosen, she may approach the ice sufficiently near, and remain four or five hours, whilst her boat takes you to make the observations and to return.

"If the ice be not 'fixed' you must be careful to detect an azimuthal motion, should there be any, by which the inclination circle might otherwise be removed from the plane of the magnetic meridian without your being aware of it. You will also take care that the magnetic instruments are sufficiently distant from the boat.

"EDWARD SABINE."

"*Woolwich.*"

The Pagoda sailed from the Cape of Good Hope on the 9th of January, proceeding, pursuant to instructions, towards the Antarctic Circle in the meridian of Greenwich. She crossed the 60th parallel in the longitude of 4° east, and being impeded by ice in her direct progress to the southward, coasted its margin to the south-east, and attained her greatest southing on the 10th of February in latitude $-68° \, 10'$ and longitude 35°. She was then according to the chart in the vicinity of the western extremity of Enderby's Land, but from strong south-east gales and the position of the ice was unable to approach it sufficiently even to see the land: from thence she continued a general progress to the eastward, keeping in as high a parallel as the ice and weather permitted. On the 10th of March she had obtained the 96th degree of east longitude in about the 60th degree of latitude, when the season was considered to be so far advanced that it would not be prudent to persevere in the completion of the survey in the high latitudes; and a course was therefore taken for King George's Sound in Australia, where the ship arrived on the 1st of April. During the whole of this voyage observations of the three magnetic elements were made twice in each day, except in extreme circumstances of weather, by Lieut. MOORE in the afternoon and Lieut. CLERK in the forenoon, each being furnished with a separate (Fox's) apparatus for the Inclination and Force; and on the arrival of the ship at King George's Sound, the two instruments were found to give an almost identical value for the intensity of the force, the results being by Lieut. MOORE's Fox 1·680, and by Lieut. CLERK's 1·688.

After remaining a sufficient time to examine the index and other corrections of the instruments, and to obtain the necessary data for eliminating the effects of the ship's iron on the magnetic results obtained during the voyage, the Pagoda quitted King George's Sound on the 27th of April and returned to the Cape of Good Hope, touching at Mauritius by the way for the purpose of repeating the observations on the influence of the ship's iron. She arrived at the Cape on the 20th of June, having continued the practice of observing the magnetic elements daily on the return passage, in the same manner as in the high latitudes.

The voyage was performed without accident or loss of life, and the crew returned in perfect health, due doubtless in great degree to the supplies of warm clothing and preserved meats, which, by direction of the Admiralty, Lieut. Moore had taken with him from England.

No failure occurred in any of the instruments notwithstanding the continual use in which they were kept by the zeal of the observers. If where so much was so well accomplished it is permissible to feel or to express regret on any account, it can be only that circumstances should have prevented the completion of the survey in the high latitudes as far as the 125th degree of longitude according to the original design, whereby the observations of the magnetic force would have been carried up to the principal axis of the isodynamic oval of 2·00.

On the conclusion of the voyage Lieut. Clerk received directions from the Master-General of the Ordnance to return to Woolwich, for the purpose of completing the reduction of his own observations and those of Lieut. Moore. The following pages contain Lieut. Clerk's report; in which he has also embodied a series of observations on the Inclination and Force with a Fox's apparatus, made in 1844 by Lieut. Alexander Smith, R.N., one of the Assistants at the Hobarton Magnetic Observatory, on his passage to Van Diemen Island; and a second series, also of the Inclination and Force, made in 1845 by Lieut. Dayman, R.N., of the same observatory, in a passage in the bark "Leander" from Hobarton to the Cape. Both these officers had previously been employed in the Antarctic Expedition under Sir James Clark Ross, and their observations now communicated are a consequence of the zeal which they imbibed, and the practice in the use of instruments which they acquired, in that expedition. Their observations transmitted to the Admiralty were sent to Woolwich for reduction and publication. Lieut. Clerk has also embodied in his report the determinations of the three magnetic elements made by Sir James Ross in the Erebus in 1840 on her passage from the Cape of Good Hope to Kerguelen Island, and thence to Hobarton.

On inspecting the map, it will be seen that the tracks of the Erebus and Prince Regent held about a middle line between the outward and homeward tracks of the Pagoda, and are therefore extremely useful in connecting results which would otherwise have been somewhat too far apart.

Lieut. Clerk has taken the Cape of Good Hope as the base station of the observations of the magnetic force made in the Pagoda. The determinations of the absolute horizontal force made at the observatory at the Cape in February, March, April and

May 1845 (page 362 *in seq.*), which are the last received from that station, give a mean result of 4·482, the mean inclination during the same month being $-53° 25'·5$. Combining these with the determination at Woolwich in No. VII. of these Contributions*, we have the total force at the Cape in the arbitrary scale 0·993. The ratios determined by Mr. Fox's statical apparatus (page 363 *in seq.*) by separate needles are 1·000 and 1·006: the value of the total force at the Cape as a base station for the observations of the Pagoda has therefore been taken as 1·000.

As Lieut. Smith did not touch at the Cape on his passage to Hobarton, and as the needle which Lieut. Dayman had employed on his homeward passage was broken at the Cape before observations had been made with it, and consequently before the series between Hobarton and the Cape could be connected with the latter station, it has been necessary to employ Hobarton as the base station of both these series. I have already stated in Nos. V. and VI. of these Contributions, the results of the observations which were made to determine the absolute horizontal force at Hobarton between 1840 and 1844; viz. by Sir James C. Ross in 1840 and 1841, with magnets of fifteen inches in length†; by Lieut. Kay in 1841 and 1842, with magnets of the same length‡; by Lieut. Kay in 1844 with magnets of twelve inches§, and with others of 9·18 and 7·50 inches‖. I have now to add the results of twenty-four determinations made by Lieut. Kay between November 1844 and September 1845, with magnets of various lengths, as shown in the following table:—

Magnets and their length.		Date.	No. of distances.	Horizontal force.
Suspended.	Deflecting.			
in.	in.			
—— 7·50	—— 9·18	Nov. 7, 1844.	3	4·5108
—— 7·50	—— 9·18	Sept. 9, 1845.	3	4·4810
A 57 3·00	D xv. 3·67	Dec. 7, 1844.	3	4·5316
A 57 3·00	D xv. 3·67	Dec. 9, 1844.	5	4·5118
A 57 3·00	D xv. 3·67	Dec. 11, 1844.	5	4·4954
A 57 3·00	D xv. 3·67	Jan. 12, 1845.	5	4·5058
A 57 3·00	D xv. 3·67	May 5, 1845.	3	4·4997
A 57 3·00	D xv. 3·67	Aug. 15, 1845.	5	4·4762
A 57 3·00	D 9 3·67	Aug. 19, 1845.	5	4·5104
A 57 3·00	D 9 3·67	May 6, 1845.	3	4·5076
A 57 3·00	A 19 3·02	Aug. 20, 1845.	5	4·4905
A 52 3·00	D xvi. 3·67	Jan. 19, 1845.	3	4·4940
R 1 3·00	D xvi. 3·67	Aug. 28, 1845.	4	4·4970
I 12 2·45	A 19 3·00	Dec. 13, 1844.	5	4·4954
I 12 2·45	A 19 3·00	Dec. 13, 1844.	5	4·4899
I 12 2·45	A 19 3·00	Dec. 15, 1844.	5	4·4865
I 12 2·45	A 19 3·00	Jan. 14, 1845.	5	4·4809
I 12 2·45	A 29 3·00	Aug. 26, 1845.	5	4·5016
I 12 2·45	A 23 3·00	Aug. 22, 1845.	5	4·4994
I 1 2·45	A 23 3·00	Dec. 20, 1844.	3	4·5046
I 1 2·45	A 23 3·00	Dec. 23, 1844.	3	4·5121
I 1 2·45	A 23 3·00	Dec. 26, 1844.	5	4·5020
I 1 2·45	A 23 3·00	Jan. 15, 1845.	5	4·5082
I 1 2·45	A 23 3·00	May 9, 1845.	3	4·4970
			Mean..................	4·4992

* Philosophical Transactions, 1846, p. 246.

† Ibid. 1843, p. 168.

‡ Ibid. p. 168 (note).

§ Ibid. 1844, p. 111.

‖ Ibid. p. 112.

Collecting in one view the different mean results, we have

Ross, in 1840–41, 15 in. magnets	4·573
Kay, in 1841, 15 in. magnets	4·553
Kay, in 1842, 15 in. magnets	4·513
Kay, in 1843, 12 in. magnets	4·520
Kay, in 1843, 9·18 and 7·50 in. magnets	4·501
Kay, in 1844–45, magnets of various lengths, 9·18 to 2·45 in.	4·499

These results exhibit (with one exception) a progressive decrease, but between those of 1840–41, and subsequent years, there is a very great difference. The inclination has decreased from $-70° \; 40'{\cdot}7$, observed in 1840–41*, to $-70° \; 37'{\cdot}6$, which is the mean of the results obtained twice in each week at the Hobarton Observatory in the first nine months of 1845. Assuming the total force at Hobarton as constant, the horizontal component should have been increased rather than diminished by the small secular change which appears to have taken place in the Inclination. The discrepancy between the earlier and later results of the absolute determinations cannot therefore be a consequence of secular change in the Inclination; nor is it probable that the total force should have undergone a decrease of such magnitude. Presuming the results of 1840–41, with the 15-inch magnets, to have been affected with error from some cause as yet unexplained, (possibly from an erroneous value having been taken for the moment of inertia of the magnet,) the subsequent results exhibit only such differences as cannot be regarded as excessive. They have all to undergo recalculation, as Lieut. Kay does not consider the elements of reduction as yet finally determined; and they will all, in common with all the other determinations of the absolute horizontal force given in these Contributions, have to receive a small correction for the difference of the magnetic moment of the deflecting bar, caused by the earth's inducing action in the different positions in which the bar is placed in the experiments of deflection and vibration. If, therefore, we assume provisionally the mean of the four last results, or 4·508, as the best approximation to which we have yet arrived for the horizontal component at Hobarton, and $-70° \; 39'$ as the corresponding Inclination, we have the total force in the arbitrary scale 1·797; and we may hence conclude, that influenced by the earlier determinations (those of 1840–41), the provisional value of the total force at Hobarton, employed in the Vth and VIth Numbers of the Contributions (1·82), was taken too high, and that all the values of the force dependent on Hobarton will require a correction to be applied, in amount about $-0{\cdot}02$, before they are combined in the general map of the southern hemisphere. For Lieut. Smith's and Lieut. Dayman's observations, Lieut. Clerk has taken a base value of 1·80 at Hobarton.

A subsequent number of these Contributions will contain the Magnetic Observations of the Erebus and Terror in the summer of 1843–1844, between the meridians

* Philosophical Transactions, 1843, p. 165.

of Cape Horn and of the Cape of Good Hope, which will complete the survey of the high latitudes of the southern hemisphere.

I propose then to combine in one general view the several portions of the southern survey which have been successively communicated; and I shall reserve until that occasion, as more convenient than the present, such general remarks as suggest themselves in reference to the magnetic lines determined in the present Number.

"*Report on the Magnetic Observations made in Her Majesty's hired bark Pagoda, from January to June* 1845, *by Lieut.* HENRY CLERK *of the Royal Artillery.*

"1. *Calculation of Corrections for the Ship's Local Attraction.*

"To obtain the corrections for the observations of the Declination, the deviations of the compass were observed on each of the sixteen principal points at the Cape of Good Hope, King George's Sound, the Mauritius, and again at the Cape on the return of the Expedition. The following are the observations:—

Ship's head.	Cape of Good Hope.		King George's Sound.	Mauritius.
	January.	June.		
	° ′	° ′	° ′	° ′
N.	0 12+	0 20+	0 15+	0 20+
N.N.W.	0 57+	Not observed.	0 00	0 30+
N.W.	0 08−	0 50+	0 20+	0 20−
W.N.W.	0 00	0 50−	1 40−	0 30−
W.	0 13−	0 15−	1 40−	0 50−
W.S.W.	0 28−	0 30−	1 50−	1 10−
S.W.	1 28−	1 20−	1 00−	1 10−
S.S.W.	1 06−	1 25−	0 15−	0 50−
S.	*1 48+	0 18−	0 50+	0 20+
S.S.E.	0 42+	Not observed.	0 55+	1 00+
S.E.	1 12+	1 50+	2 20+	1 20+
E.S.E.	1 27+	1 40+	3 10+	0 55+
E.	0 57+	1 45+	2 40+	1 20+
E.N.E.	0 27+	1 50+	3 10+	0 50+
N.E.	0 12+	1 35+	3 30+	1 20+
N.N.E.	0 32+	1 13+	2 35+	1 20+

The + sign denotes a deviation of the north end towards the west.

"The values of θ (the Inclination) being as follows, viz.—

Cape of Good Hope . . . $\theta = -53^{\circ}\ 44'$

King George's Sound . . . $\theta = -65\ 04$

Mauritius . . . . $\theta = -53\ 56$

"From these observations we can obtain the values of a and b by the formulæ in No. V. of the Contributions to Terrestrial Magnetism †, which give the following values, viz.—

* This observation is evidently erroneous.

† Philosophical Transactions, 1843, Part II. p. 148.

Cape of Good Hope . . .	$a=\cdot 0148$ . . .	$b=\cdot 9848$
King George's Sound . . .	$a=\cdot 0199$ . . .	$b=1\cdot 0040$
Mauritius	$a=\cdot 0158$ . . .	$b=\cdot 9907$
Mean . .	$a=\cdot 0168$ . . .	$b=\cdot 9932$

"The values of a and b can also be obtained by observations of the horizontal intensity on the N., S., E. and W. points alone.

"If the card of the azimuth compass be deflected by another magnet (the small deflectors belonging to the dipping-needle for instance), and if v_n, v_s, v_w, and v_e be the angles of deflection observed on the N., S., W. and E. points respectively, then

$$a \tan \theta = \frac{\operatorname{cosec} v_n - \operatorname{cosec} v_s}{\operatorname{cosec} v_n + \operatorname{cosec} v_s}; \quad b = \frac{\operatorname{cosec} v_w + \operatorname{cosec} v_e}{2\sqrt{\operatorname{cosec} v_w \cdot \operatorname{cosec} v_e}}.$$

"The deflections were obtained in this manner at the Cape of Good Hope, and at King George's Sound on the N. and S. points, viz.—

Cape of Good Hope.		King George's Sound.	
At N. the deflection . .	$=16^\circ\ 20'$	At N. the deflection .	$=15^\circ\ 23'$
At S.	$=15\ 35$	At S.	$=14\ 06$
Hence	$a=\cdot 0168$	And	$a=\cdot 0198$

Agreeing very closely with the values determined above.

"After an inspection of the observations at the several stations, Mr. ARCHIBALD SMITH has kindly furnished the following Memorandum.

"'The formulæ for the correction of observations of magnetic declination, made on board ship, given in the Vth and VIth numbers of the Contributions, are deduced on the supposition that the soft iron of the ship is symmetrically distributed on each side of the fore and aft vertical section passing through the compass. The deviations observed in the Pagoda by Lieut. CLERK, seem to show that the soft iron was not so distributed in that vessel, and to require for their correction formulæ in which no supposition is made as to the distribution of the iron of the vessel, except that there is no iron very near the compass.

"'Using the notation of the memorandums in Nos. V. and VI. of the Contributions, let φ represent the total magnetic force of the earth at the place of observation, θ the inclination, ζ the azimuth of the ship's head, reckoning from (magnetic) north to west, and let φ', θ', ζ' represent the values of the same quantities, shown by an instrument placed at a fixed position in the vessel, and affected by the attraction of the iron in the vessel.

"'The first three equations in the memorandum in Contribution No. VI. may be transformed into the following, viz.—

$$\varphi \cos\theta \cos\zeta = \varphi' \cos\theta' \{A' \cos\zeta' + B' \sin\zeta'\} + \varphi' \sin\theta'\, C' + P' \quad \quad (1.)$$

$$\varphi \cos\theta \sin\zeta = \varphi' \cos\theta' \{D' \cos\zeta' + E' \sin\zeta'\} + \varphi' \sin\theta'\, F' + Q' \quad \quad (2.)$$

$$\varphi \sin\theta = \varphi' \cos\theta' \{G' \cos\zeta' + H' \sin\zeta'\} + \varphi' \sin\theta'\, K' + R' \quad \quad (3.)$$

"'The coefficients $A' B' \ldots R'$ might, if required, be expressed in terms of the corresponding coefficients of Contribution No. VI. It is here however only important to observe that $A' B' C' D' E' F' G' H' K'$ depend only on the amount and distribution of the *soft* iron. $P' Q' R'$ depend partly on the amount and distribution of the soft iron, and partly on the amount and distribution of the permanently magnetic iron, and become zero when there is no permanently magnetic iron. If the soft iron is symmetrically distributed on each side of the fore and aft vertical section passing through the compass, $B' D' F' H'$ are equal to zero.

"'The above equations are deduced, it must be remembered, on the hypothesis that the *soft* iron of the vessel receives its full charge of induced magnetism instantly on the vessel assuming a new position, and that the rest of the iron in the vessel is in a permanently magnetic state. On this hypothesis, and supposing that no iron is very near the compass, the equations are *accurate*, and the coefficients A' B', &c. are *constant*, and *independent of the latitudes*. The hypothesis is however evidently not strictly true. The magnetic state of the hard, if not of the soft iron of the vessel, changes with a change of position and with time. In consequence of this, different values of the coefficients are derived from observations made at different places, and at the same place at different times.

"'Careful observations, made in a variety of circumstances and localities, and particularly, (for a reason which will appear in a subsequent part of this Memorandum,) observations made near the line of no dip, when the affected dip is zero, may hereafter throw light on the nature of the change which takes place in the magnetic state of a vessel, and furnish the means of determining the change which the coefficients undergo. In the present Memorandum they are supposed to be constant.

"'From equations (1.) and (2.) the following may be deduced:

$$\left.\begin{aligned}\sin(\zeta-\zeta') = {} & \frac{\varphi'\cos\theta'}{\varphi\cos\theta}\left\{\frac{D'-B'}{2}-\frac{A'-E'}{2}\sin 2\zeta'+\frac{B'+D'}{2}\cos 2\zeta'\right\}\\ & -\frac{\varphi'\sin\theta' C'+P'}{\varphi\cos\theta}\sin\zeta'+\frac{\varphi'\sin\theta' F'+Q'}{\varphi\cos\theta}\cos\zeta'\end{aligned}\right\} \quad . \quad . \quad (4.)$$

"'This equation is rigorously accurate, on the assumptions which have been made. If $\varphi' \cos\theta'$ and $\varphi' \sin\theta'$ were known in terms of φ, θ and ζ', and the coefficients determined by observation, this equation would furnish accurate corrections for observations of Declination. The expression is very much simplified if we may assume $\theta'=\theta$, and $\varphi'=\varphi$. This assumption may I believe in general be safely made, except in high magnetic latitudes. Making this assumption, we have the following *approximate* formula,

$$\left.\begin{aligned}\sin(\zeta-\zeta') = {} & \frac{D'-B'}{2}-\left\{C'\tan\theta+\frac{P'}{\varphi\cos\theta}\right\}\sin\zeta'+\left\{F'\tan\theta+\frac{Q'}{\varphi\cos\theta}\right\}\cos\zeta'\\ & -\frac{A'-E'}{2}\sin 2\zeta'+\frac{B'+D'}{2}\cos 2\zeta'\end{aligned}\right\} \quad . \quad . \quad (5.)$$

"'This equation may conveniently be put under the form

$$\sin\delta = A+B\sin\zeta'+C\cos\zeta'+D\sin 2\zeta'+E\cos 2\zeta' \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (6.)$$

$\delta=\zeta-\zeta'$ is the deviation of the compass; B corresponds to the coefficient $a \tan \theta$ of the former memorandum; D to the coefficient $1-b$. A, B, C, D, E are coefficients, which are to be determined by observations of deviation made with the ship's head on different azimuths. A, D and E, it will be seen, are independent of the dip, and, to the extent to which the hypothesis above mentioned is correct, will have the same values in different latitudes. B and C depend on the dip, and also on the proportion of the soft to the permanently magnetic iron. This ratio cannot be determined from observations made in one place. If P′, Q′, C′, F′ remain constant, they can severally be determined from values of B and C deduced in *two* different latitudes, and the values of B and C in any other latitude may be deduced from the equations

$$B=-\left\{C' \tan \theta+\frac{P'}{\varphi \cos \theta}\right\} \ldots (7.) \qquad C=F' \tan \theta+\frac{Q'}{\varphi \cos \theta} \quad . \quad . \quad . \quad . \quad (8.)$$

the accurate values of B and C being

$$B=-\frac{\varphi' \sin \theta' C'+P'}{\varphi \cos \theta'}, \qquad C=\frac{\varphi' \sin \theta' F'+Q'}{\varphi \cos \theta}.$$

If the affected dip is zero, we have

$$R=-\frac{P'}{\phi}, \qquad C=\frac{Q'}{\phi}.$$

So that from observations on the line of no dip, or more accurately when the affected dip is zero, the effect of the permanent magnetism may be obtained.

"'If we distinguish the points of the compass, reckoning from north to west, by the numbers from 1 to 32, north being 0 or 32, and north by west being 1; and if we designate by δ_0, δ_1, &c. the westerly deviation when the ship's head is north, or north by west, &c., so that δ_8 represents the deviation at W., δ_{16} at S., δ_{24} at E., it is evident from the equations that we have at once the following simple expressions for the values of the coefficients:—

$$A=\frac{1}{4}\left\{\sin \delta_0+\sin \delta_8+\sin \delta_{16}+\sin \delta_{24}\right\} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (9.)$$

$$B=\frac{1}{2}\left\{\sin \delta_8-\sin \delta_{24}\right\} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (10.)$$

$$C=\frac{1}{2}\left\{\sin \delta_0-\sin \delta_{16}\right\} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (11.)$$

$$D=\frac{1}{4}\left\{\sin \delta_4-\sin \delta_{12}+\sin \delta_{20}-\sin \delta_{28}\right\} \quad . \quad . \quad . \quad . \quad . \quad . \quad (12.)$$

$$E=\frac{1}{4}\left\{\sin \delta_0-\sin \delta_8+\sin \delta_{16}-\sin \delta_{24}\right\} \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (13.)$$

"'More accurate values of the coefficients may be obtained by combining observations of deviation, made with the ship's head on the several points, in the following manner:—

"'1. Suppose the deviation to have been observed on all the thirty-two points. Let

$\zeta'_1, \zeta'_2 \ldots \zeta'_{32}$ be the observed azimuths, which of course are 11° 15′, 22° 30′, &c. Then we have

$$\left.\begin{aligned}
\sin\delta_0 &= A + C + E \\
\sin\delta_1 &= A + B\sin\zeta'_1 + C\cos\zeta'_1 + D\sin 2\zeta'_1 + E\cos 2\zeta'_1 \\
\sin\delta_2 &= A + B\sin\zeta'_2 + C\cos\zeta'_2 + D\sin 2\zeta'_2 + E\cos 2\zeta'_2 \\
&\&c. \qquad \&c. \\
\sin\delta_{31} &= A + B\sin\zeta'_{31} + C\cos\zeta'_{31} + D\sin 2\zeta'_{31} + E\cos 2\zeta'_{31}
\end{aligned}\right\} \quad \ldots \quad (14.)$$

Combining these equations by the method of least squares, we obtain by virtue of a well-known property of circular functions,

$$\left.\begin{aligned}
A &= \frac{1}{32}\Sigma\sin\delta \\
B &= \frac{1}{16}\Sigma\sin\delta\sin\zeta' \\
C &= \frac{1}{16}\Sigma\sin\delta\cos\zeta' \\
D &= \frac{1}{16}\Sigma\sin\delta\sin 2\zeta' \\
E &= \frac{1}{16}\Sigma\sin\delta\cos 2\zeta'
\end{aligned}\right\} \quad \ldots\ldots\ldots \quad (15.)$$

where $\Sigma\sin\delta = \sin\delta_0 + \sin\delta_1 \ldots\ldots + \sin\delta_{31}$,

$$\Sigma\sin\delta\sin\zeta' = \sin\delta_0\sin\zeta'_0 + \sin\delta_1\sin\zeta'_1 + \&c. + \sin\delta_{31}\sin\zeta'_{31}$$

&c. &c. &c.

"'If we represent $\sin\delta_0$, $\sin\delta_1$, &c. by s_0, s_1, &c., and remember that all the values of $\sin\zeta'$, $\cos\zeta'$, $\sin 2\zeta'$, $\cos 2\zeta'$ which occur in these formulæ can be represented by the quantities s_1, s_2, s_3, s_4, s_5, s_6, s_7, we shall find

$$A = \frac{1}{32}\{s_0 + s_1 + s_2 \quad \ldots\ldots \quad + s_{31}\} \quad \ldots\ldots\ldots \quad (16.)$$

$$\begin{aligned}
B = {}&\cdot 0122\ (\log = \bar{2}\cdot 08611)\{s_1 - s_{31} + s_{15} - s_{17}\}, \\
&+\cdot 0239\ (\log = \bar{2}\cdot 37872)\{s_2 - s_{30} + s_{14} - s_{18}\}, \\
&+\cdot 0347\ (\log = \bar{2}\cdot 54062)\{s_3 - s_{29} + s_{13} - s_{19}\}, \\
&+\cdot 0442\ (\log = \bar{2}\cdot 64536)\{s_4 - s_{28} + s_{12} - s_{20}\}, \\
&+\cdot 0520\ (\log = \bar{2}\cdot 71572)\{s_5 - s_{27} + s_{11} - s_{21}\}, \\
&+\cdot 0577\ (\log = \bar{2}\cdot 76149)\{s_6 - s_{26} + s_{10} - s_{22}\}, \\
&+\cdot 0613\ (\log = \bar{2}\cdot 78745)\{s_7 - s_{25} + s_9 - s_{23}\}, \\
&+\frac{1}{16}\{s_8 - s_{24}\} \quad \ldots\ldots\ldots\ldots \quad (17.)
\end{aligned}$$

$$C = \frac{1}{16}\{s_0 - s_{16}\},$$

$$+\cdot 0613\ (\log = \bar{2}\cdot 78745)\{s_1 + s_{31} - s_{15} - s_{17}\},$$

$$+\cdot 0577\ (\log = \bar{2}\cdot 76149)\{s_2 + s_{30} - s_{14} - s_{18}\},$$

$$+\cdot 0520\ (\log = \bar{2}\cdot 71572)\{s_3 + s_{29} - s_{13} - s_{19}\},$$

$$+\cdot 0442\ (\log = \bar{2}\cdot 64536)\{s_4 + s_{28} - s_{12} - s_{20}\},$$

$$+\cdot 0347\ (\log = \bar{2}\cdot 54062)\{s_5 + s_{27} - s_{11} - s_{21}\},$$

$$+\cdot 0239\ (\log = \bar{2}\cdot 37872)\{s_6 + s_{26} - s_{10} - s_{22}\},$$

$$+\cdot 0122\ (\log = \bar{2}\cdot 08611)\{s_7 + s_{25} - s_9 - s_{23}\}. \quad \ldots \ldots \quad (18.)$$

$$D = \cdot 0577\ (\log = \bar{2}\cdot 76149)\{s_1 - s_{31} - s_{15} + s_{17} + s_7 - s_{25} - s_9 + s_{23}\},$$

$$+\cdot 0442\ (\log = \bar{2}\cdot 64536)\{s_2 - s_{30} - s_{14} + s_{18} + s_6 - s_{26} - s_{10} + s_{22}\},$$

$$+\cdot 0229\ (\log = \bar{2}\cdot 37872)\{s_3 - s_{29} - s_{13} + s_{19} + s_5 - s_{27} - s_{11} + s_{21}\},$$

$$+\frac{1}{16}\{s_4 - s_{28} - s_{12} + s_{20}\}. \quad \ldots \ldots \quad (19.)$$

$$E = \frac{1}{16}\{s_0 + s_{16} - s_8 - s_{24}\},$$

$$+\cdot 0239\ (\log = \bar{2}\cdot 37872)\{s_1 + s_{31} + s_{15} + s_{17} - s_7 - s_{25} - s_9 - s_{23}\},$$

$$+\cdot 0442\ (\log = \bar{2}\cdot 64536)\{s_2 + s_{30} + s_{14} + s_{18} - s_6 - s_{26} - s_{10} - s_{22}\},$$

$$+\cdot 0577\ (\log = \bar{2}\cdot 76149)\{s_3 + s_{29} + s_{13} + s_{19} - s_5 - s_{27} - s_{11} - s_{21}. \quad \ldots \quad (20.)$$

"'2. Using the deviations observed on the sixteen principal points only, we have

$$A = \frac{1}{16}\{s_0 + s_2 + s_4 \quad \ldots \quad + s_{30}\}. \quad \ldots \ldots \quad (21.)$$

$$B = \cdot 0478\ (\log = \bar{2}\cdot 67975)\{s_2 - s_{30} + s_{14} - s_{18}\},$$

$$+\cdot 0884\ (\log = \bar{2}\cdot 94639)\{s_4 - s_{28} + s_{12} - s_{20}\},$$

$$+\cdot 1155\ (\log = \bar{1}\cdot 06252)\{s_6 - s_{26} + s_{10} - s_{22}\},$$

$$+\frac{1}{8}\{s_8 - s_{24}\}. \quad \ldots \ldots \quad (22.)$$

$$C = \frac{1}{8}(s_0 - s_{16}),$$

$$+\cdot 1155\ (\log = \bar{1}\cdot 06252)\{s_2 + s_{30} - s_{14} - s_{18}\},$$

$$+\cdot 0884\ (\log = \bar{2}\cdot 94639)\{s_4 + s_{28} - s_{12} - s_{20}\},$$

$$+\cdot 0478\ (\log = \bar{2}\cdot 67975)\{s_6 + s_{26} - s_{10} - s_{22}\}. \quad \ldots \ldots \quad (23.)$$

$$D = \cdot 0884\ (\log = \bar{2}\cdot 94639)\{s_2 - s_{30} - s_{14} + s_{18} + s_6 - s_{26} - s_{10} + s_{22}\},$$

$$+\frac{1}{8}\{s_4 - s_{28} - s_{12} + s_{20}\}. \quad \ldots \ldots \quad (24.)$$

$$E = \frac{1}{8}\{s_0 + s_{16} - s_8 - s_{24}\},$$

$$+\cdot 0884\ (\log = \bar{2}\cdot 94639)\{s_2 + s_{30} + s_{14} + s_{18} - s_6 - s_{10} - s_{22} - s_{26}\}. \quad . \quad (25.)$$

"'3. Using the deviations observed on the eight principal points only, we have

$$A=\frac{1}{8}\{s_0+s_4+s_8 \quad . \quad . \quad . \quad . \quad +s_{28}\}. \qquad (26.)$$

$$B=\cdot1768\,(\log=\bar{1}\cdot24742)\{s_4-s_{28}+s_{12}-s_{20}\},$$
$$+\frac{1}{4}\{s_8-s_{24}\}. \qquad (27.)$$

$$C=\frac{1}{4}\{s_0-s_{16}\},$$
$$+\cdot1768\,(\log=\bar{1}\cdot24742)\{s_4+s_{28}-s_{12}-s_{20}\}. \qquad (28.)$$

$$D=\frac{1}{4}\{s_4-s_{28}-s_{12}+s_{20}\}. \qquad (29.)$$

$$E=\frac{1}{4}\{s_0+s_{16}-s_8-s_{24}\}. \qquad (30.)$$

"'Having found A, B, C, D, E by any of the above methods, a table of the deviations on all the points may then be computed. The computation will be facilitated by using the following Table :—

"'Let B_1, B_2 .... B_7, C_1, C_2 .... C_7 represent the values of B and C multiplied by sin 11° 15′, sin 22° 30′, and let D_2, D_4, D_6, E_2, E_4, E_6 represent the values of D and E multiplied by sin 22° 30′, sin 45°, and sin 67′ 30°, we have then

$$\sin\delta_0 = A+C+E$$
$$\sin\delta_{16}=A-C+E$$

$$\sin\delta_1 = A+B_1+C_7+D_2+E_6$$
$$\sin\delta_{31}=A-B_1+C_7-D_2+E_6$$
$$\sin\delta_{15}=A+B_1-C_7-D_2+E_6$$
$$\sin\delta_{17}=A-B_1-C_7+D_2+E_6$$

$$\sin\delta_2 = A+B_2+C_6+D_4+E_4$$
$$\sin\delta_{30}=A-B_2+C_6-D_4+E_4$$
$$\sin\delta_{14}=A+B_2-C_6-D_4+E_4$$
$$\sin\delta_{18}=A-B_2-C_6+D_4+E_4$$

$$\sin\delta_3 = A+B_3+C_5+D_6+E_2$$
$$\sin\delta_{29}=A-B_3+C_5-D_6+E_2$$
$$\sin\delta_{13}=A+B_3-C_5-D_6+E_2$$
$$\sin\delta_{19}=A-B_3-C_5+D_6+E_2$$

$$\sin\delta_4 = A+B_4+C_4+D$$
$$\sin\delta_{28}=A-B_4+C_4-D$$
$$\sin\delta_{12}=A+B_4-C_4-D$$
$$\sin\delta_{20}=A-B_4-C_4+D$$

$$\sin\delta_5 = A+B_5+C_3+D_6-E_2$$
$$\sin\delta_{27} = A-B_5+C_3-D_6-E_2$$
$$\sin\delta_{11} = A+B_5-C_3-D_6-E_2$$
$$\sin\delta_{21} = A-B_5-C_3+D_6-E_2$$

$$\sin\delta_6 = A+B_6+C_2+D_4-E_4$$
$$\sin\delta_{26} = A-B_6+C_2-D_4-E_4$$
$$\sin\delta_{10} = A+B_6-C_2-D_4-E_4$$
$$\sin\delta_{22} = A-B_6-C_2+D_4-E_4$$

$$\sin\delta_7 = A+B_7+C_1+D_2-E_6$$
$$\sin\delta_{25} = A-B_7+C_1-D_2-E_6$$
$$\sin\delta_9 = A+B_7-C_1-D_2-E_6$$
$$\sin\delta_{23} = A-B_7-C_1+D_2-E_6$$

$$\sin\delta_8 = A+B-E$$
$$\sin\delta_{24} = A-B-E.$$

"'If the deviations are under 7° or 8°, the angles of deviation may be used in the formulæ instead of the sines of the angles without producing a sensible error in the result.

"'It may be observed that $\phi'\cos\theta'$ and $\phi'\sin\theta'$ would be themselves properly expressed in a series containing sines and cosines of ζ' and $2\zeta'$, and this would introduce into the expression for $\sin\delta$ terms of the form

$$F\sin 3\zeta'+G\cos 3\zeta'+H\sin 4\zeta'+K\cos 4\zeta'.$$

"'The omission of these terms from the formula we have used does not affect the values we have found for A, B, C, D, E; and the values of the additional coefficients may be determined from the following expressions, in which we make use of the observations on the sixteen principal points only:—

$$\begin{aligned} F = &\cdot 1155\ (\log = \bar{1}\cdot 06252)\{s_2-s_{30}+s_{14}-s_{18}\}, \\ &+\cdot 0884\ (\log = \bar{2}\cdot 94639)\{s_4-s_{28}+s_{12}-s_{20}\}, \\ &-\cdot 0478\ (\log = \bar{2}\cdot 67975)\{s_6-s_{26}+s_{10}-s_{22}\}, \\ &-\frac{1}{8}(s_8-s_{24}). \end{aligned} \qquad (31.)$$

$$\begin{aligned} G = &\frac{1}{8}(s_0-s_{16}) \\ &+\cdot 0478\ (\log = \bar{2}\cdot 67975)\{s_2+s_{30}-s_{14}-s_{18}\}, \\ &-\cdot 0884\ (\log = \bar{2}\cdot 94639)\{s_4+s_{28}-s_{12}-s_{20}\}, \\ &-\cdot 1155\ (\log = \bar{1}\cdot 06252)\{s_6+s_{26}-s_{10}-s_{22}\}. \end{aligned} \qquad (32.)$$

$$H = \frac{1}{16}\{s_2-s_{30}-s_{14}+s_{18}-s_6+s_{26}+s_{10}-s_{22}\}. \qquad (33.)$$

$$K = \frac{1}{16}\{s_0+s_{16}+s_8+s_{24}-s_4-s_{28}-s_{12}-s_{20}\}. \qquad (34.)$$

"'If the deviations are so small that the angles may be used instead of their sines, then the differences between the observed deviations and the deviations calculated with the first five terms may be used instead of s_2, s_4, &c. in finding F and G or H and K. There is however no advantage gained thereby, as the quantities within the brackets in F and G have already been found in calculating B and C.

"'As an example of the use of these formulæ, we may take the deviations observed on board Her Majesty's ship Erebus at Gillingham, in Sept. 1839*.

"'From the deviations observed on the sixteen principal points, I find

$$\delta=17'+235' \sin \zeta'-13' \cos \zeta'+21' \sin 2\zeta'-1'\cdot 23 \cos 2\zeta'.$$

"'From the deviations on the eight principal points, I find

$$\delta=16'+233'\cdot 5 \sin \zeta'-14' \cos \zeta'+21 \sin 2\zeta'-0'\cdot 75 \cos 2\zeta'.$$

"'Applying the correction derived from the first formula, the residuary differences on the sixteen principal points, beginning with north, are respectively—

$$-3', 0, +6', +14', -6', -18', +12', +7', +1', -11', -12', -9', +5', +7', +6', 0.$$

"'These differences evidently nearly follow the law of sin $3\zeta'$; they give

$$F=5'\cdot 5\,;\ G=-7'.$$

"'After applying the correction $5'\cdot 5 \sin 3\zeta'-7' \cos 3\zeta'$, the residuary difference is

$$+4'\ -2', -3', +9', 0', -9', +13', -1', -6', -9', -3', -4', -1', -2', +5', +8'.$$

"'The differences, it will be seen, are smaller, and do not distinctly follow any regular law. If we calculate H and K we shall find

$$H=2'\,;\ K=1'.$$

But these corrections are so much within the errors of observation, that there could be no advantage in using them.

"'The expression for sin δ may be put under the following form, viz.—

$$\sin \delta=A+\sqrt{B^2+C^2} \sin (\zeta'+\alpha)+D \sin 2\zeta'+E \cos 2\zeta', \quad . \quad . \quad . \quad . \quad (35.)$$

in which α is the angle whose tangent is $\frac{C}{B}$, and is nearly the easterly azimuth of the line of no deviation.

"'It seems probable that in ordinary cases A, α, D and E will not change materially with a change of latitude, while $\sqrt{B^2+C^2}$ will vary nearly as the tangent of the dip. The last-mentioned term is also the most important, from its magnitude and its dependence on the changes which the permanent magnetism undergoes. It may therefore be useful to have the means of obtaining this quantity separately. This may be done from observations of the horizontal force, made in the position of the standard compass, with the ship's head on any two opposite (affected) courses, from the formula

$$\sqrt{B^2+C^2}=\frac{\sqrt{H_1^2+H_2^2+2H_1H_2 \cos (\text{diff. of true azimuth})}}{H_1+H_2}, \quad . \quad . \quad . \quad (36.)$$

* Contributions, No. V., p. 150.

in which H_1 H_2 represent the observed horizontal force in the two positions of the ship's head.

" 'If the difference of the true azimuths of the ship's head is 180°, the expression becomes

$$\sqrt{B^2+C^2}=\pm\frac{H_1-H_2}{H_1+H_2}, \quad \ldots \quad (37.)$$

which is the same expression as that for the value of $\alpha \tan \theta$ in the Memorandum in No. V. of these Contributions.

" 'The value of the horizontal force may be determined by vibrating a horizontal needle, or by deflecting the compass needle in the manner described by Lieut. CLERK in page 347. The difference of azimuths may be determined by the bearings of a distant object, or astronomically.

" 'This method seems to be adapted to the case of a ship lying at moorings in a tideway. The observations may be made before and after the change of tide, and the rudder adjusted so that the difference of the compass bearings of the ship's head may be exactly 180°.

" 'This formula is more accurate the more nearly the dip approaches to 90°; and the method seems therefore particularly applicable in high magnetic latitudes.

" 'If the true magnetic azimuth of the ship's head on the two positions is determined, the values of B and C may be obtained by the formula

$$B=-\frac{H_2 \cos \zeta_1+H_1 \cos \zeta_2}{H_1+H_2},$$

$$C=\frac{H_2 \sin \zeta_1+H_1 \sin \zeta_2}{H_1+H_2}.$$

" 'A. S.'

" '*Lincoln's Inn, March* 3, 1846.'

" The constants for correcting the declination observations were (in consequence of this Memorandum) calculated by the equations 21, 22, 23, 24 and 25, taking the mean of the two series at the Cape of Good Hope.

" The following are the deduced values of the constants :—

Station.	θ.	φ.	A.	B.	C.	D.	E.
Cape of Good Hope	−53° 44′	1·013	+·00600	−·01412	+·00742	+·00911	−·00333
Mauritius	−53 56	1·158	+·00479	−·01550	+·00514	+·00448	+·00335
King George's Sound............	−65 04	1·703	+·01453	−·03295	+·00658	−·00156	+·00082
Means...............	−57 35	1·291	+·00844	−·02086	+·00638	+·00401	+·00028

" From the three values of B, and C, values of C′ and P′, F′ and Q′ were obtained by the equations

$$B=-\left(C' \tan \theta+\frac{P}{\varphi \cos \theta}\right); \text{ and } C=F' \tan \theta+\frac{Q}{\varphi \cos \theta};$$

for we have

Cape . . $-\cdot01412=C'\times1\cdot363+P'\times1\cdot669$; also $+\cdot00742=-1\cdot363F'-1\cdot669Q'$

Mauritius . $-\cdot01550=C'\times1\cdot373+P'\times1\cdot467$; also $+\cdot00514=-1\cdot373F'-1\cdot467Q'$

King George's Sound . $-\cdot03295=C'\times2\cdot151+P'\times1\cdot393$; also $+\cdot00658=-2\cdot151F'-1\cdot393Q'$.

Hence by elimination we obtain

$$C'=-\cdot0209;\quad F'=-\cdot0006;$$
$$P'=+\cdot0088;\quad Q'=-\cdot0034.$$

"From the values of C', P', F' and Q', a table of the values of B and C in different dips and intensities was formed, and from them with the mean values of A, D and E, a table for correcting the observations of Declination was calculated by equ. 35. The corrections thus obtained appear to give very closely the true corrections, at all events much within the limits of observation errors. The following is a comparison between the observed and calculated deviations at King George's Sound, θ being $=-65°\ 04'$, and $\phi=1\cdot70$.

Ship's head.	δ by calculation.	δ by observation.	Difference.	Ship's head.	δ by calculation.	δ by observation.	Difference.
N.	+0° 52′	+0° 15′	−0° 37′	S.	+0° 03′	+0° 50′	+0° 47′
N.N.W.	+0 17	0 00	−0 17	S.S.E.	+0 47	+0 55	+0 08
N.W.	−0 21	+0 20	+0 41	S.E.	+1 25	+2 20	+0 55
W.N.W.	−0 58	−1 40	−0 42	E.S.E.	+2 02	+3 10	+1 08
W.	−1 25	−1 40	−0 15	E.	+2 25	+2 40	+0 15
W.S.W.	−1 16	−1 50	−0 34	E.N.E.	+2 17	+3 10	+0 53
S.W.	−0 54	−1 00	−0 06	N.E.	+1 52	+3 30	+1 38
S.S.W.	−0 24	−0 24	+0 09	N.N.E.	+1 22	+2 35	+1 13

+ Sign denotes a deviation towards the west.

"It appears from this comparison, that the calculated corrections are smaller in amount than the observed. As the ship had just returned from a high magnetic latitude, it is probable that the observed corrections belonged to a greater dip than the one at the station, and therefore that the corrections would be more nearly represented by taking them out from the Table for a larger Inclination and Intensity. The great differences on the E.S.E., N.E. and N.N.E. points are caused most probably by errors of observation.

"The correctness of equation (6.) will be more easily perceived by the accordance of observations made at sea, in a high dip, making due allowance for the difficulty of observing in bad weather.

"2. *Calculation of Corrections for the Inclination Observations.*

"To obtain these corrections four constants are necessary, viz. a, b, c, d; a and b are obtained from the deviations of a compass (placed on the same spot as the dipping-

needle) on the sixteen principal points. The following are the observations at King George's Sound, the Mauritius, and the Cape of Good Hope.

Ship's head.	King George's Sound.	Mauritius.	Cape of Good Hope.	Ship's head.	King George's Sound.	Mauritius.	Cape of Good Hope.
	° ′	° ′	° ′		° ′	° ′	° ′
N.	−0 45	−0 05	−0 25	S.	Not observed.	+1 25	−0 50
N.N.W.	−1 15	−1 25	Not observed.	S.S.E.	+2 40	+1 15	Not observed.
N.W.	−2 05	−1 45	−0 05	S.E.	+3 25	+1 10	+1 55
W.N.W.	−3 20	−2 25	−0 35	E.S.E.	+3 25	+1 50	+2 35
W.	−3 35	−3 05	−0 50	E.	+3 25	+2 15	+2 40
W.S.W.	−3 45	−3 05	−1 15	E.N.E.	+2 35	+1 05	+1 10
S.W.	−1 55	−1 35	−1 45	N.E.	+2 45	+0 35	+0 45
S.S.W.	*3 00	−1 05	−0 35	N.N.E.	+2 20	+0 25	+0 05

"Allowing for the errors of observation, it appears from these observations that the iron is symmetrically distributed in reference to the compass placed on the same spot where the observations of inclination and intensity were made, and therefore that we may use the equations in Contributions V. and VI.

"From these equations the values of a and b are found,—

At King George's Sound . . . . $a=\cdot0296$; $b=\cdot9867$;
Mauritius . . . . $a=\cdot0272$; $b=\cdot9910$;
Cape of Good Hope . . . . . . $a=\cdot0192$; $b=\cdot9766$.

"The values of a and b can be found independently of the compass, from the observations of dip and intensity themselves, A′ being supposed $=1$, by means of the formulæ

$$a \sin \theta = \frac{\phi'}{\phi} \cos \theta' \cos \zeta' - \cos \theta . \cos \zeta, \quad . \ . \ . \ . \ . \ . \ . \ . \quad (1.)$$

and

$$b \cos \theta = \frac{\phi'}{\phi} \cos \theta' \sin \zeta' \cos \zeta. \quad . \ . \ . \ . \ . \ . \ . \ . \ . \ . \ . \quad (2.)$$

"Values of ϕ' and θ' were obtained from observations on the sixteen principal points of the compass made at King George's Sound, Mauritius, and the Cape of Good Hope. They are as follows:—

Values of θ'.

Ship's head.	Observed Inclination.			Ship's head.	Observed Inclination.		
	King George's Sound.	Mauritius.	Cape of Good Hope.		King George's Sound.	Mauritius.	Cape of Good Hope.
	° ′	° ′	° ′		° ′	° ′	° ′
N.	−66 15	−54 38	−54 01	S.	−64 52	−53 46	−53 28
N.N.W.	−66 33	−54 44	−54 35	S.S.E.	−65 00	−53 41	−53 50
N.W.	−66 19	−54 47	−54 56	S.E.	−65 29	−54 20	−53 51
W.N.W.	−66 07	−55 02	−54 47	E.S.E.	−65 52	−54 25	−54 24
W.	−65 44	−55 21	−54 46	E.	−66 23	−54 50	−54 46
W.S.W.	−65 42	−54 39	−54 31	E.N.E.	−66 07	−54 55	−54 53
S.W.	−65 31	−54 29	−53 45	N.E.	−66 17	−54 47	−54 37
S.S.W.	−64 48	−54 07	−53 09	N.N.E.	−66 31	−54 27	−54 25

* This observation is not taken into account, being obviously erroneous.

Values of ϕ'.

Ship's head.	Observed Intensity.			Ship's head.	Observed Intensity.		
	King George's Sound.	Mauritius.	Cape of Good Hope.		King George's Sound.	Mauritius.	Cape of Good Hope.
N.	1·737	1·150	1·024	S.	1·799	1·206	1·066
N.N.W.	1·736	1·152	1·020	S.S.E.	1·797	1·204	1·055
N.W.	1·734	1·151	1·025	S.E.	1·790	1·182	1·045
W.N.W.	1·752	1·158	1·025	E.S.E.	1·773	1·189	1·032
W.	1·758	1·166	1·028	E.	1·753	1·169	1·029
W.S.W.	1·775	1·198	1·036	E.N.E.	1·757	1·166	1·024
S.W.	1·790	1·191	1·049	N.E.	1·736	1·159	1·023
S.S.W.	1·805	1·200	1·061	N.N.E.	1·735	1·155	1·023

"The observed values of θ and ϕ are approximately—

King George's Sound . . $\theta=-65^{\circ}\ 11'$; $\phi=1{\cdot}733$
Mauritius . . . . $\theta=-54\ 14$; $\phi=1{\cdot}158$
Cape of Good Hope . . . $\theta=-53\ 37$; $\phi=1{\cdot}027$.

"Substituting these values in equations (1.) and (2.), we have

King George's Sound . . $a={\cdot}0242$; $b={\cdot}9905$;
Mauritius . . . . $a={\cdot}0234$; $b=1{\cdot}0105$;
Cape of Good Hope . . . $a={\cdot}0186$; $b={\cdot}9916$.

"Including these values with those obtained from the compass observations, we get the mean values for a and b,

$$a={\cdot}0237\,;\quad b={\cdot}9912.$$

"The constants c and d are calculated from the formula

$$c\cos\zeta+d\tan\theta=b\sin\zeta\operatorname{cosec}\zeta'\tan\theta'$$

for the observations between N.N.W. and S.S.W., and N.N.E. and S.S.E.; and for the other points, viz. N. and S., by the formula

$$c\cos\zeta+d\tan\theta=(\cos\zeta+a\tan\theta)\sec\zeta'\tan\theta'.$$

"The values of ζ and θ' were given by the observations at the several stations. The values of c and d are as follows:—

King George's Sound . . $c={\cdot}010$; $d=1{\cdot}054$;
Mauritius . . . . $c={\cdot}014$; $d=1{\cdot}011$;
Cape of Good Hope . . . $c={\cdot}003$; $d=1{\cdot}033$.

The values of c and d were also obtained from the observations of dip and intensity, independently of a and b, by the formula

$$c\cos\theta\cos\zeta-d\sin\theta=\frac{\Phi'}{\Phi}\sin\theta',$$

A being supposed equal to unity; which gives the following values:—

King George's Sound . . $c=\cdot028$; $d=1\cdot023$;
Mauritius . . . . $c=\cdot024$; $d=1\cdot017$;
Cape of Good Hope . . . $c=\cdot021$; $d=1\cdot020$.

"The mean of these six values makes

$$c=\cdot017;\quad d=1\cdot026.$$

"From these values of a, b, c and d, a table of corrections was found by means of equations (12.) and (13.) (Contribution V.), employing calculated values of ζ.

"In order to test the accuracy of the table, we may compare observed and calculated values of the dip at King George's Sound. It will be seen that on the northerly points the correction is rather too large, on the easterly and westerly too small, and nearly correct on the S., S.S.W. and S.S.E. points. The differences however are within the limits of observation errors.

Ship's head.	Observed Inclination.	Tabular correction.	Corrected Inclination.	
	° ′	° ′	° ′	° ′
N.	−66 15	+1 23	−64 52	
N.N.W. and N.N.E.	−66 32	+1 23	−65 09	
N.W. and N.E.	−66 18	+1 31	−64 47	
W.N.W. and E.N.E.	−66 07	+1 09	−64 58	
W. and E.	−66 03	+0 46	−65 17	−65 08
W.S.W. and E.S.E.	−65 47	+0 23	−65 24	
S.W. and S.E.	−65 30	+0 02	−65 28	
S.S.W. and S.S.E.	−64 54	−0 16	−65 10	
S.	−64 52	−0 18	−65 10	

The mean inclination observed on shore with the same needle being $-65°\ 11'$.

"3. *Calculation of Corrections for Intensity Observations.*

"The constant A is calculated from the above observations by means of the formula

$$\frac{\phi'}{A'\phi}\sin\theta'=c\cos\theta\cos\zeta+d\sin\theta.$$

"The values of θ', φ' and ζ, are all given by the observations on the sixteen points of the compass; those of φ and θ by the observations on shore. The following are the resulting values for A′, viz.—

King George's Sound . . . $A'=0\cdot998$
Mauritius . . . . $A'=0\cdot992$
Cape of Good Hope . . . . $A'=0\cdot992$

Mean . . $A'=0\cdot994$

"This value being so near unity, A is assumed $=1\cdot0$, with which and the values of c and d already determined, a table of corrections was formed by means of the equation

$$\frac{\phi'}{\phi}=A'c\left(\frac{d}{c}\tan\theta+\cos\zeta\right)\cos\theta\operatorname{cosec}\theta'\,*,$$

θ' and ζ being obtained from the tables for correcting the dips and declinations.

* Philosophical Transactions, 1843, Part II. p. 162.

"II. *Determination of Index Corrections.*

"1. *Declination Observations.*

"The compass used was one of the Admiralty compasses (B. 20). It was supplied with two cards, one considerably heavier than the other to be used in bad weather; but as it was found that in all weathers the heavy card was the steadiest and gave the best results, it was accordingly generally used. The index corrections of both cards were determined at the Magnetic Observatory, Cape of Good Hope. The following are the means of several observations with each card; the mean monthly declination by the observatory declinometer being +29° 07′.

Card A (the light card) gave . +28° 20′; correction +47′.
Card J (the heavy card) gave . +28 15; correction +52.

"These corrections have been applied to all the observations, according to the card employed.

"2. *Inclination Observations.*

"Two of Mr. Fox's instruments were kept in constant use, one observed in the forenoon and the other in the afternoon. In order to distinguish them, we may call the one observed in the morning No. 1, the other was marked C. 9. In No. 1, needle 1 was mounted and used throughout, the spare needle 2 being used as a deflector. The index correction for 1 was determined at the Magnetic Observatory at the Cape, both before and after the Expedition, by comparing the inclination with the face of the instrument west (that being the way the observations were taken on board) with the mean monthly inclination shown by the observatory needles. The following are the observations with the deflectors at 40° from the apparent dip:—

November 10, 1844, needle 1, face west −53° 39′; correction + 8′
November 10, 1844, needle 1, face east −53 59; correction +28
November 21, 1844, needle 1, face west −53 38; correction + 7
November 21, 1844, needle 1, face east −53 58; correction +27

The mean monthly inclination being −53° 31′.

"After the 13th of January it was found more convenient to adjust the deflectors at the apparent dip, and make the same observations serve both for dip and intensity. The index corrections to be applied in this case are given by the following observations:—

Date.	Observed Inclination.—Face West.					True Inclination.	Index correction.
	Direct.	Def. N.	Def. S.	Def. N and S.	Mean.		
1844.							
December 1 ...	−53° 52′	−53° 21′	−53° 44′	−53° 39′	−53° 39′	−53° 31′	+07
December 5 ...	−53 49	−53 20	−53 43	−53 38	−53 38		
1845.							
June 30	−54 12	−53 13	−53 46	−53 51	−53 45	−53 25	+19
July 2	−54 08	−53 15	−53 46	−53 43	−53 43		
Mean......	−54 01	−53 17	−53 45	−53 43	−53 41	−53 28	+13

"Magnets N and S are the small magnets belonging to the apparatus used conjointly; deflector N and deflector S are the respective poles of the spare needle. $+13'$ has been applied in all cases except when only magnets N and S have been used, in which case $+24'$ has been used, that being the mean correction for direct and magnets N and S.

"For the index corrections for needle A of C. 9, we have only an observation in Simon's Bay, Cape of Good Hope, before starting. Needle A was used from the Cape to King George's Sound, and was observed on shore at King George's Sound on the 7th of April. On the 10th it was found, from the discordance of the observations, that its axle had been damaged since the observations on the 7th, it was therefore taken out and needle B mounted in its place. The instrument had a third needle C which was used as a deflector. The small magnets were also used, both conjointly and separately. The observation in Simon's Bay gives,—

$$\left.\begin{array}{ll}\text{For C. 9, needle A} \;.\;.\;.\;.\;.\;.\;.\;.\;. & -53^\circ\, 24' \\ \text{Corrected inclination, needle 1} \;.\;.\;. & -53^\circ\, 50'\end{array}\right\}\text{Index correction } -26'.$$

This correction has been applied to all observations made with needle A of C. 9. For the correction of needle B, we have a comparison at the Cape of Good Hope after the return of the Expedition, and also at Woolwich, in January 1846. All observations with this instrument were taken with the face east.

"The following are the observations at the Cape:—

Date.	Observed Inclination.—Face East.							True Inclination.	Index correction.
	Direct.	Def. N.	Def. S.	Mag. N and S.	Mag. N.	Mag. S.	Mean.		
1845. June 30.	−53° 56′	−54° 15′	−52° 47′	−54° 06′	−53° 29′	−53° 23′	−53° 40′	−53° 25′	+15′
July 2.	−53 41	−54 11	−52 55	−54 15	−53 49	−53 41	−53 45	−53 25	+20
Mean...	−53 48	−54 13	−52 51	−54 10	−53 39	−53 32	−53 43	−53 25	+18

"And at Woolwich:—

Date.	Observed Inclination.—Face East.							True Inclination.	Index correction.
	Direct.	Def. N.	Def. S.	Mag. N and S.	Mag. N.	Mag. S.	Mean.		
1846. Jan. 13.	+68° 58′	+68° 02′	+68° 37′	+68° 24′	+68° 32′	+68° 30′	+68° 31′	+68° 58′	+22′
15.	+68 56	+68 21	+68 52	+68 45	+68 35	+68 34	+68 41		
Mean...	+68 57	+68 12	+68 44	+68 35	+68 33	+68 32	+68 36	+68 58	+22

"The index correction obtained at the Cape has been used for all the observations taken with this needle.

"3. *Elements of Calculation of the Intensity Observations.*

"Fox No. 1.—For the observations with this instrument, the Cape of Good Hope has been taken as a base station, the intensity having been observed there both before and after the Expedition, so that any change in the magnetism of the deflectors or needles can be detected.

"The intensity at Woolwich being assumed =1·372, it is necessary to get the corresponding intensity at the Cape. This can be got independent of the dipping-needles, by means of the absolute horizontal intensity and inclination observed at each station.

"The value of the horizontal intensity at the Cape is given as follows by observations made at the observatory in February, March, April and May 1845:—

"Observations of the Absolute Horizontal Intensity, at the Magnetic Observatory, Cape of Good Hope, 1845.

Bar. A. 21. Suspended . . . length 3·00 inch . . . $\left(1+\frac{H}{F}\right)=1·00084$.

Bar. V. Deflecting . . . length 3·67 inch . . . $q=·00008$ . . . $\log \pi^2 . k=1·57254$.

Date.	Angles of Deflection.		Corrected time of vibration.	Temperature during		Bifilar readings at 60 during		Results.		
	Dist. 1·2 ft.	Dist. 1·3 ft.		Deflection.	Vibration.	Deflection.	Vibration.	m.	X.	
1845.	° ′	° ′	s	°	°	Scale dir.	Scale dir.			
Feb. 10, 11, 12.	6 05·1	4 47·5	4·4970	71·4	71·7	185·9	185·8	0·4118	4·488	4·482
Mar. 10, 11, 12.	6 01·1	4 44·0	4·5310	71·4	71·9	186·0	185·8	0·4064	4·480	
Apr. 13, 14, 15.	5 57·5	4 41·2	4·5570	62·9	62·6	176·9	177·4	0·4019	4·478	
May 14, 15, 16.	5 55·5	4 39·2	4·5650	60·7	59·9	177·2	177·5	0·4001	4·482	

"The value of k is obtained by means of two cylindrical weights in the usual manner; the value employed is the mean of several determinations. Bifilar magnetometer $k=·000218$, $q=·000218$. Increase of reading denotes increase of force.

Whence X=4·482, θ being $=-53° 25'·5$.

"The corresponding values at Woolwich are

X=*3·7284, θ being $=+68° 57'·9$.

"From these values of X and θ, we obtain the relative value of the intensity at the Cape (that at Woolwich being 1·372), I=0·993.

"The relative intensity given by the needles of No. 1, from observations made at Woolwich and the Cape and given in the sequel, are as follows:—

Needle 1. $\left\{\begin{array}{l}\text{Weight 1 gr. } I=0·996\\ \text{Weight 2 grs. } I=1·017\end{array}\right\}1·006$. Needle 2. $\left\{\begin{array}{l}\text{Weight 1 gr. } I=0·994\\ \text{Weight 2 grs. } I=1·006\end{array}\right\}1·000$.

* Contributions, No. VII.; Philosophical Transactions, 1846, p. 246.

"The value of I at the Cape has therefore been assumed provisionally as unity; subject to future correction should any appear to be required.

"The spare needle 2 was always used as a deflector; the two small magnets were used conjointly only with this apparatus.

"Tables of equivalent weights were made at the Cape both before and after the Expedition, according to the method given in the instructions for the use of Mr. Fox's instrument. The following Table contains the mean of the two series.

Def. N.		Def. S.		Mag. N and S.		Def. N. (Continued.)		Def. S. (Continued.)		Mag. N. and S. (Continued.)	
v'.	w'.	v'.	w'.	v'.	w'.	v'.	w'.	v'.	w'.	v'.	w'.
°	gr.	°	gr.	°	grs.	°	gr.	°	gr.	°	grs.
21	1·816	22	1·950	41	3·608	31	1·843	32	1·935	51	2·786
22	1·835	23	1·964	42	3·522	32	1·828	33	1·918	52	2·717
23	1·850	24	1·972	43	3·438	33	1·814	34	1·903	53	2·654
24	1·861	25	1·977	44	3·350	34	1·801	35	1·891	54	2·595
25	1·867	26	1·983	45	3·262	35	1·788	36	1·868	55	2·535
26	1·868	27	1·980	46	3·179	36	1·770	37	1·852	56	2·480
27	1·867	28	1·977	47	3·093	37	1·756	38	1·833	57	2·428
28	1·866	29	1·968	48	3·013	38	1·744	39	1·812	58	2·377
29	1·861	30	1·960	49	2·933	39	1·726	40	1·793	59	2·330
30	1·858	31	1·946	50	2·853	40	1·707	41	1·775	60	2·278

"With these values of w', and the following values of v and w, the values of I' have been calculated by the formula

$$I' = I\,\frac{\sin v . w'}{\sin v' . w} \text{ when deflectors are used, and}$$

$$I' = I\,\frac{\sin v}{\sin v'} \text{ when weights are used.}$$

Values of v at the Cape of Good Hope.

Date.	Def. N. $w=1·721$.	Def. S. $w=1·782$.	Mag. N and S. $w=2·337$.	Weight 1 grain.	Weight 2 grains.	Weight $2\frac{1}{2}$ grains.
1844.						
Dec. 1.	39° 06′	40° 38′	59° 23′	21° 30′	46° 54′	65° 22′
5.	39 01	40 37	59 22	21 34	46 33	65 20
1845.						
June 30.	39 31	40 39	58 16	21 38	46 32	65 30
July 2.	39 22	40 39	58 21	22 06	46 21	65 30
Mean...	39 15	40 38	58 51	21 42	46 35	65 25

"From this Table it is evident that, with the exception of magnets N and S, the needles preserved their magnetism throughout the voyage. Magnets N and S lost magnetism to the amount of ·033. The mean of the four observations have been taken; the early intensities by this method will therefore be rather too small, the latter ones rather too great.

"The formulæ for calculation are as follows:—

Def. N. . . . . $I'=\cdot 3677 \operatorname{cosec} v' \,.\, w'$.
Def. S. . . . . $I'=\cdot 3654 \operatorname{cosec} v' \,.\, w'$.
Mag. N and S . . . . . . $I'=\cdot 3659 \operatorname{cosec} v' \,.\, w'$.
Weight 1 grain . . . . $I'=\cdot 3698 \operatorname{cosec} v' \,.\, w'$.
Weight 2 grains . . . . $I'=\cdot 7264 \operatorname{cosec} v' \,.\, w'$.
Weight $2\frac{1}{2}$ grains . . . $I'=\cdot 9094 \operatorname{cosec} v' \,.\, w'$.

"Fox C. 9.—The values of the intensity at the Cape by the observations before and after the Expedition, by Fox, No. 1, are:—

$$\left.\begin{array}{ll}\text{Before} \;.\;.\;.\;.\;.\;. & I=0\cdot 999 \\ \text{After} \;.\;.\;.\;.\;.\;.\;. & I=1\cdot 001\end{array}\right\}\ \text{diff. }\cdot 002.$$

"These values agreeing so closely, we may assume that the intensity at King George's Sound with this apparatus will be very near the truth, and that King George's Sound may therefore be taken as a base station for needle A of C. 9, which was not observed at the Cape before our departure. The intensities were observed with needle A mounted, from the Cape to King George's Sound, when the needle got unfortunately damaged, and it was necessary to replace it with needle B: one day's observations had however been made before the accident, and these observations serve for calculating the intensities taken on the voyage, assuming the intensity at King George's Sound to be that given by the other apparatus, viz. 1·688.

"The same deflectors and weights were used throughout; the spare needle C as a deflector, the two small magnets both conjointly and separately.

"Tables of equivalent weights for these deflectors, with needle A mounted, were obtained in the same way as in the case of the other apparatus. They are as follows:

Def. N.		Def. S.		Mag. N and S.		Mag. N.		Mag. S.	
v'.	w'.	v'.	w'.	v'.	w'.	v'.	w'.	v'.	w'.
°	grs.	°	grs.	°	grs.	°	grs.	°	grs.
50	2·175	50	2·206	70	2·625	50	1·578	50	1·975
49	2·200	49	2·247	69	2·675	49	2·028	49	2·025
48	2·225	48	2·288	68	2·725	48	2·078	48	2·075
47	2·263	47	2·323	67	2·775	47	2·130	47	2·125
46	2·300	46	2·357	66	2·825	46	2·182	46	2·175
45	2·338	45	2·388	65	2·875	45	2·235	45	2·240
44	2·375	44	2·419	64	2·925	44	2·288	44	2·304
43	2·413	43	2·460	63	2·982	43	2·341	43	2·368
42	2·450	42	2·500	62	3·038	42	2·394	42	2·433
41	2·488	41	2·538	61	3·094	41	2·447	41	2·498
40	2·525	40	2·575	60	3·150	40	2·500	40	2·563
39	2·565	39	2·615	59	3·222	39	2·570	39	2·623
38	2·605	38	2·655	58	3·294	38	2·640	38	2·683
37	2·645	37	2·695	57	3·365	37	2·710	37	2·743
36	2·685	36	2·735	56	3·436	36	2·780	36	2·803
35	2·725	35	2·775	55	3·507	35	2·850	35	2·863
34	2·755	34	2·806	54	3·595	34	2·900	34	2·937
33	2·785	33	2·837	53	3·683	33	2·950	33	3·011
32	2·815	32	2·869	52	3·770	32	3·000	32	3·085
31	2·845	31	2·901	51	3·857	31	3·050	31	3·158
30	2·875	30	2·932	50	3·944	30	3·100	30	3·232
29	2·900	29	2·954	49	4·047				
28	2·925	28	2·975	48	4·150				

"The angles of deflection observed at King George's Sound are as follows:—

Def. N. $w=2{\cdot}779$.	Def. S. $w=2{\cdot}821$.	Mag. N and S. $w=3{\cdot}909$.	Mag. N. $w=2{\cdot}875$.	Mag. S. 2·895.	Weight 1 grain.	Weight $1\frac{1}{2}$ grain.	Weight 2 grains.	Weight $2\frac{1}{2}$ grains.	Weight 3 grains.
33° 11′	33° 32′	50° 24′	34° 30′	34° 34′	10° 44′	17° 16′	22° 55′	28° 18′	35° 10′

"Employing the values of v and w (I being $=1{\cdot}688$), we get formulæ for calculating the intensities, viz.—

Def. N . . . . $I'={\cdot}3325 \operatorname{cosec} v' . w'$.
Def. S . . . . . $I'={\cdot}3306 \operatorname{cosec} v' . w'$.
Mag. N and S $I'={\cdot}3327 \operatorname{cosec} v' . w'$.
Mag. N . . . . $I'={\cdot}3326 \operatorname{cosec} v' . w'$.
Mag. S . . . . $I'={\cdot}3308 \operatorname{cosec} v' . w'$.

Weight 1 grain . . $I'={\cdot}3144 \operatorname{cosec} v'$.
Weight $1\frac{1}{2}$ grain. . $I'={\cdot}5010 \operatorname{cosec} v'$.
Weight 2 grains . . $I'={\cdot}6573 \operatorname{cosec} v'$.
Weight $2\frac{1}{2}$ grains . $I'={\cdot}8003 \operatorname{cosec} v'$.
Weight 3 grains . . $I'={\cdot}9722 \operatorname{cosec} v'$.

Comparing observations made at sea near the Cape with those given by the other needle, the deflectors of this apparatus do not appear to have lost magnetism.

"From King George's Sound to the Cape, needle B was mounted, the same deflectors and weights being used as with needle A. The Cape of Good Hope has been taken as the base station in this case, the intensity having been observed there on the return of the Expedition.

"The table of equivalent weights is given below.

Def. N.		Def. S.		Mag. N and S.		Mag. N.		Mag. S.	
v'.	w'.	v'.	w'.	v'.	w'.	v'.	w'.	v'.	w'.
29°	1·794	35°	2·104	50°	2·763	31°	1·891	36°	2·174
30	1·782	36	2·076	51	2·701	32	1·862	37	2·122
31	1·765	37	2·046	52	2·638	33	1·833	38	2·069
32	1·748	38	2·015	53	2·576	34	1·804	39	2·012
33	1·734	39	1·986	54	2·513	35	1·773	40	1·954
34	1·719	40	1·956	55	2·457	36	1·741	41	1·903
35	1·697	41	1·927	56	2·401	37	1·705	42	1·851
36	1·675	42	1·898	57	2·345	38	1·669	43	1·801
37	1·657	43	1·865	58	2·288	39	1·635	44	1·751
38	1·638	44	1·832	59	2·247	40	1·600	45	1·707
39	1·619	45	1·799	60	2·203	41	1·563	46	1·663
40	1·600	46	1·766	61	2·167	42	1·525	47	1·626
41	1·582	47	1·740	62	2·110	43	1·494	48	1·588
42	1·563	48	1·713	63	2·071	44	1·463		
43	1·541	49	1·684	64	2·032	45	1·443		
44	1·519	50	1·654	65	1·996				
45	1·491			66	1·960				
				67	1·927				

"The following are the angles of deflection on three separate days at the Magnetic Observatory, Cape of Good Hope:—

Def. N. $w=1{\cdot}500$.	Def. S. $w=1{\cdot}659$.	Mag. N and S. $w=1{\cdot}953$.	Mag. N. $w=1{\cdot}480$.	Mag. S. $w=1{\cdot}615$.	Weight 1 grain.	Weight $1\frac{1}{2}$ grain.	Weight 2 grains.
44° 32′	49° 48′	66° 02′	43° 21′	47° 13′	28° 00′	44° 10′	69° 31′
45 00	49 59	66 20	43 45	47 23			
44 33	49 42	66 16	43 15	47 20	28 26	44 16	69 15
44 42	49 50	66 13	43 27	47 19	28 13	44 13	69 23

"Assuming the intensity at the Cape as unity, we get the following formulæ for calculation:—

Def. N	$I'=\cdot4692$ cosec $v'.w'$.
Def. S	$I'=\cdot4606$ cosec $v'.w'$.
Mag. N and S	$I'=\cdot4686$ cosec $v'.w'$.
Mag. N	$I'=\cdot4634$ cosec $v'.w'$.
Mag. S	$I'=\cdot4552$ cosec $v'.w'$.
Weight 1 grain	$I'=\cdot4728$ cosec v'.
Weight $1\frac{1}{2}$ grain	$I'=\cdot6974$ cosec v'.
Weight 2 grains	$I'=\cdot9361$ cosec v'.

"The value of the intensity at King George's Sound by this needle is—

By weights . . . . . 1·688.
By deflectors . . . . 1·672.

"The intensity by the other apparatus No. 1 is 1·688.

"At the Mauritius the intensity is—

By weights . . . . . 1·156.
By deflectors . . . . 1·155.

And by the other instrument 1·156.

"It is therefore evident that needle B preserved its magnetism from King George's Sound to the Cape. Comparing the results with the deflectors with those of the other instrument, the deflectors do not appear to have lost magnetism; the difference at King George's Sound of ·01 arises probably from error of observation. As the results given by weights are the most accurate when the observations are made on land, they have been exclusively used in such cases; at sea both weights and deflectors have been used.

"Besides the correction for the effect of the ship's iron, a second correction for the effect of temperature on the needle and deflectors is necessary. The observations have all been reduced to a common temperature of 60° by means of the formulæ

$$c=I'.q(t'-t),$$

t being taken as 60° and q being the coefficient for 1° of Fahr. Values of q for each needle and deflector employed, were obtained at the Magnetic Observatory, Cape of Good Hope, in the usual manner. The following is an abstract of the observations:—

Needle or deflector.		Approximate distance.	Total deflection in scale divisions.	Mean alternation of temperature.	No. of alternations.	Corresponding mean difference of deflection.	Corresponding bifilar correction in parts of force when + additive.	Values of q.
		ft. in.		° ′				
No. 1.	A. 1.	3 0	497·5	38 35	5	1·36	+·000046	·000072
	A. 2.	3 0	805·2	38 76	5	3·88	+·000004	·000116
	Def. N	1 0	873·3	40 43	5	4·33	·000019	·000123
	Def. S	1 0	880·5	40 02	5	2·82	·000054	·000081
C. 9.	A.	1 5	1019·0	34 68	3	4·21	—·000070	·000117
	B.	1 5	1059·5	43 35	4	3·18	—·000004	·000069
	C.	1 5	1065·9	43 46	5	3·67	+·000008	·000079
	Def. N	1 0	1004·8	45 85	5	7·08	+·000004	·000154
	Def. S	1 0	1021·7	47 38	5	6·45	—·000024	·000133

"From the values of q tables of corrections were formed; observing that when weights are used an increase of temperature gives an additive correction, and the contrary when the deflectors are used. As the values of q are small, and the greatest difference of temperature amounts only to 30°, the corrections are seldom of any importance; they have however always been applied.

"Besides the observations made on board the Pagoda, others have been laid down on the maps, in order to assist in drawing the magnetic lines. A series of observations made by Lieut. SMITH, R.N., between the Cape and Van Diemen Island, and another by Lieut. DAYMAN, R.N., between Van Diemen Island and the Cape (with the *same* instrument), have been laid down on the map of the Inclination. The same needles and deflectors were used in both cases. Lieut. SMITH's observations are all taken with the face of the instrument east; those of Lieut. DAYMAN's with it both east and west. The following observations, made at the Ross Bank Observatory, Van Diemen Island, will serve to obtain the index corrections; the inclination by the observatory needles being $-70° 40'$.

Observer.	Direct.	Def. N.	Def. S.	Def. N and S.	Mean.	Index correction.	Face of instrument.
Lieut. SMITH.	° ′ −71 39	° ′ −71 25	° ′ −71 19	° ′ −71 36	° ′ −71 28	′ +48	East
Lieut. DAYMAN.	−71 40	−71 22	−71 14	....			
Lieut. SMITH.	−70 54	−69 54	−70 42	....	−70 20	−27	West
Lieut. DAYMAN.	−70 06	−70 09	−70 13				

"These corrections have been applied to all the observations made by Lieut. SMITH*.

"As no observations were made for local attraction, we can only obtain approximate corrections, by comparing observations made on or near the same spot with the ship's head on different points of the compass. In the series made by Lieut. SMITH we have the following observations:—

August 14.		August 18.		September 10.		September 13.	
E. ½ S.	° ′ −68 09	E.	° ′ −67 28	S.W. ½ S.	° ′ −72 41	N.	° ′ −72 02
S.E. by E. ½ E.	−68 06	E. by S.	−67 32	N.N.W.	−73 03	N.N.E.	−72 09
S.S.E.	−68 02	E.S.E.	−67 38	N.W.	−72 20		

"From these comparisons it would appear that the correction is very small, especially on the easterly points which were those generally observed upon; the observations have therefore been entered without any correction for the effect of the ship's iron.

"With regard to those of Lieut. DAYMAN, there are two cases where observations have been taken on different days, but in nearly the same position, and with the

* When observations have been made with the face both east and west, the correction becomes +10′; when weights as well as deflectors are used for the inclination, the correction face east and west becomes −13′; this has been applied to the observations made by Lieut. DAYMAN.

ship's head on different points of the compass, and also some in very nearly the same geographical position as the Pagoda. Comparing these, it appears that the effect of the iron is nearly the same in both ships; the observations have consequently been corrected from the Table that was used for those taken on board the Pagoda. The following comparisons will show how near these corrections approach the truth.

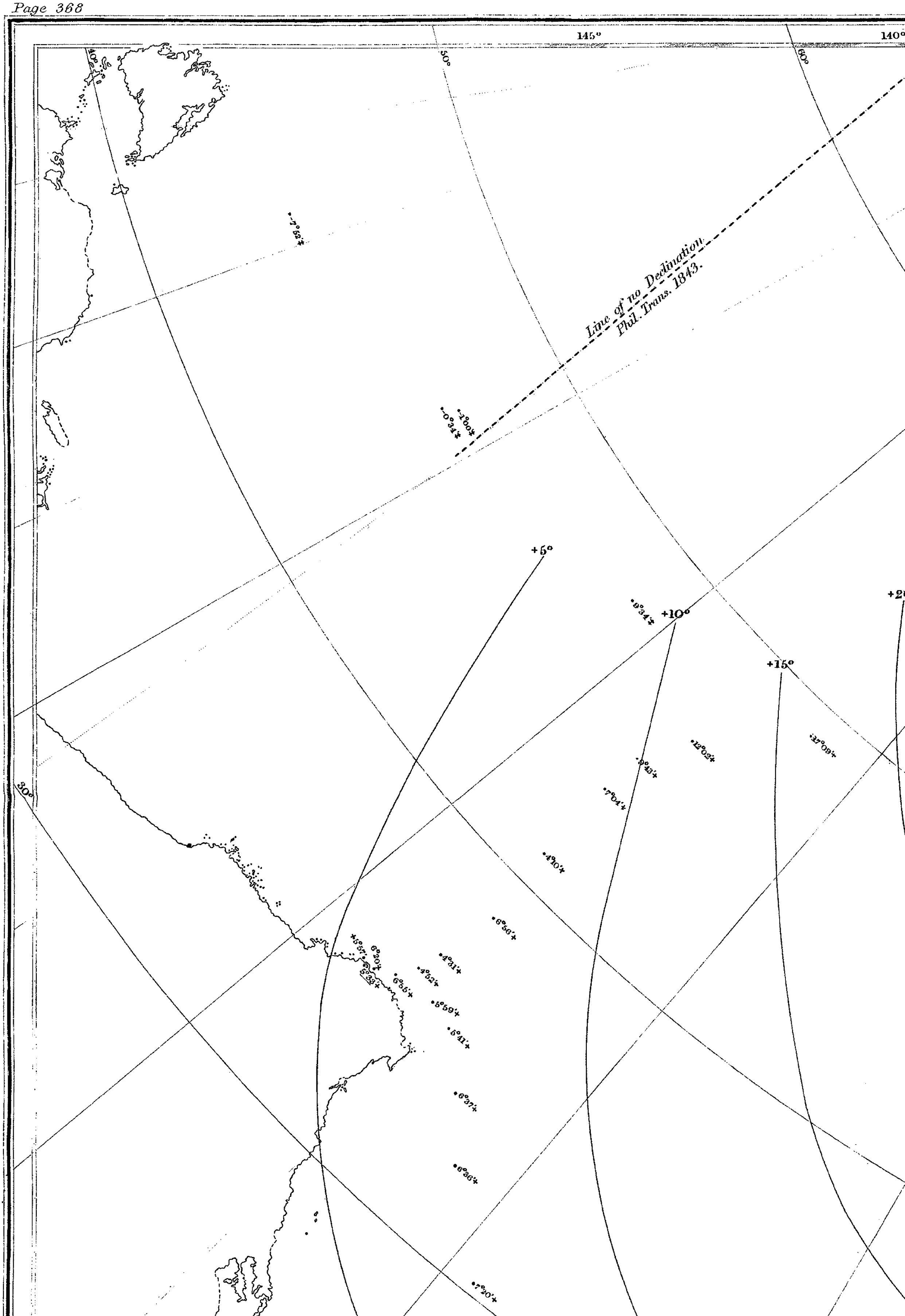
Lat.	Long.	Inclination.	Ship's head.	Tabular corrections.	Corrected Inclination.	Observer.	Remarks.
$-35\ 22$	$117\ 46$	$-66\ 06$	S. ½ E. N.N.W.	$+0\ 58$	$-65\ 08$	Lieut. DAYMAN.	Difference + 6
$-35\ 06$	$117\ 55$	....	....	....	$-65\ 14$	Lieut. CLERK.	
$-34\ 58$	$112\ 59$	$-66\ 47$	N.W.	$+1\ 31$	$-65\ 16$	Lieut. DAYMAN.	Difference −32
$-34\ 16$	$113\ 01$	....	....	....	$-64\ 44$	Lieut. CLERK.	
$-24\ 00$	$99\ 33$	$-55\ 32$	W.N.W.	$+1\ 12$	$-54\ 20$	Lieut. DAYMAN.	Difference −13
$-23\ 59$	$99\ 15$	....	....	....	$-54\ 07$	Lieut. CLERK.	
$-34\ 36$	$25\ 23$	$-57\ 01$	S.W. ½ W.	$+0\ 18$	$-56\ 43$	Lieut. DAYMAN.	Difference +23
$-34\ 31$	$27\ 04$	....	....	....	$-57\ 06$	Lieut. CLERK.	
$-34\ 48$	$19\ 33$	$-56\ 09$	N. by W. ½ W.	$+1\ 19$	$-54\ 50$	Lieut. DAYMAN.	Difference +18
$-35\ 07$	$20\ 46$	....	....	....	$-55\ 08$	Lieut. CLERK.	
$-36\ 42$	$118\ 35$	$-66\ 45$	S.S.W.	$-0\ 18$	$-67\ 03$	Lieut. DAYMAN.	January 9, 1845.
$-36\ 58$	$117\ 38$	$-68\ 41$	N. by W.	$+1\ 22$	$-67\ 19$	Lieut. DAYMAN.	January 10, 1845.
$-36\ 06$	$116\ 42$	$-66\ 09$	S.S.W.	$-0\ 18$	$-66\ 27$	Lieut. DAYMAN.	January 11, 1845.
$-36\ 24$	$115\ 33$	$-68\ 14$	N.W.	$+1\ 31$	$-66\ 43$	Lieut. DAYMAN.	January 13, 1845.

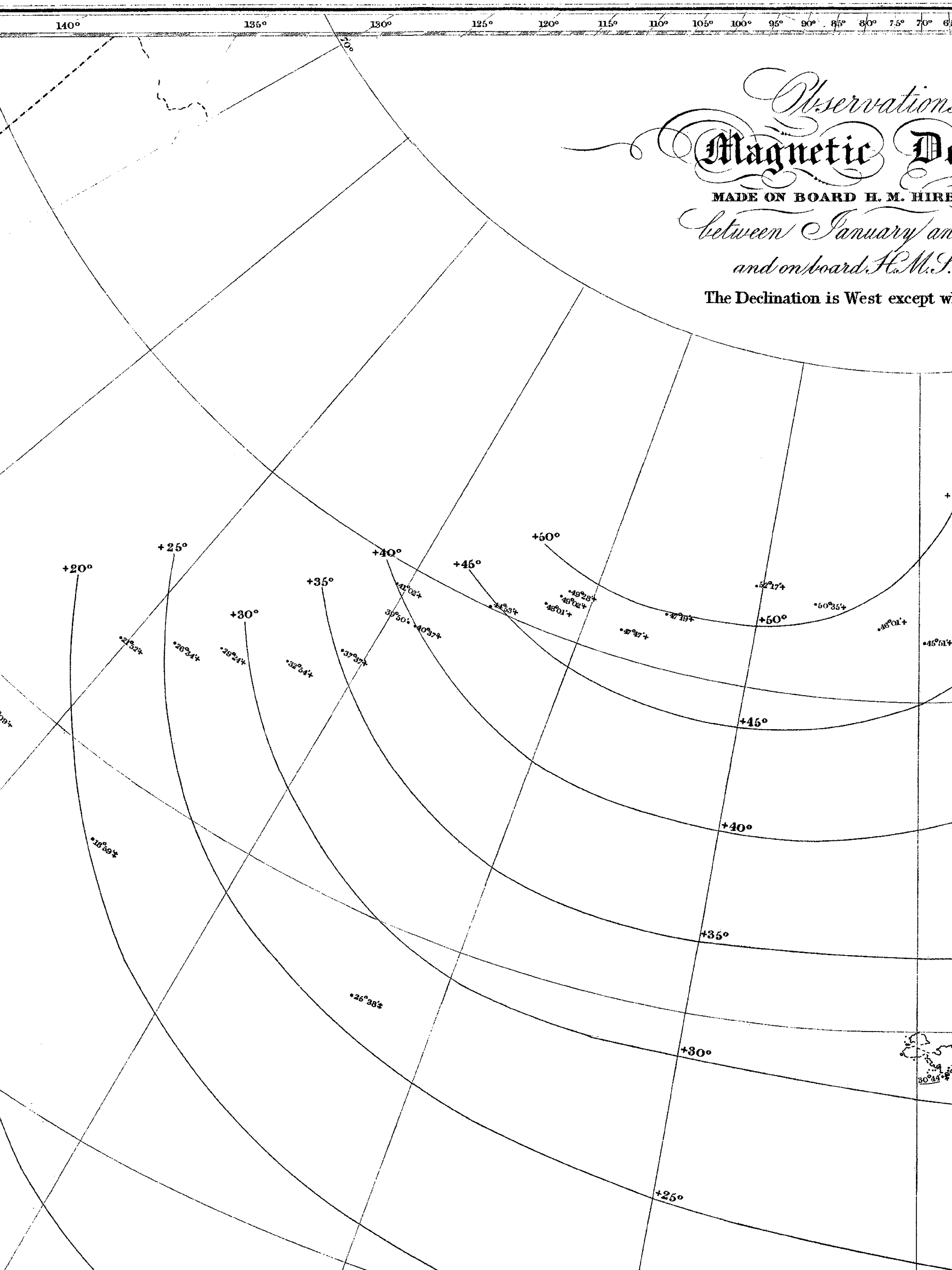
"The observations thus corrected have been entered in the chart. The lines on the chart are drawn by estimation, so as to conform as nearly as possible with the observations: some part of the lines laid down by Lieut.-Colonel SABINE (in No. V. of the Contributions) from Sir JAMES C. ROSS's observations have been dotted in, to show the agreement of the two series.

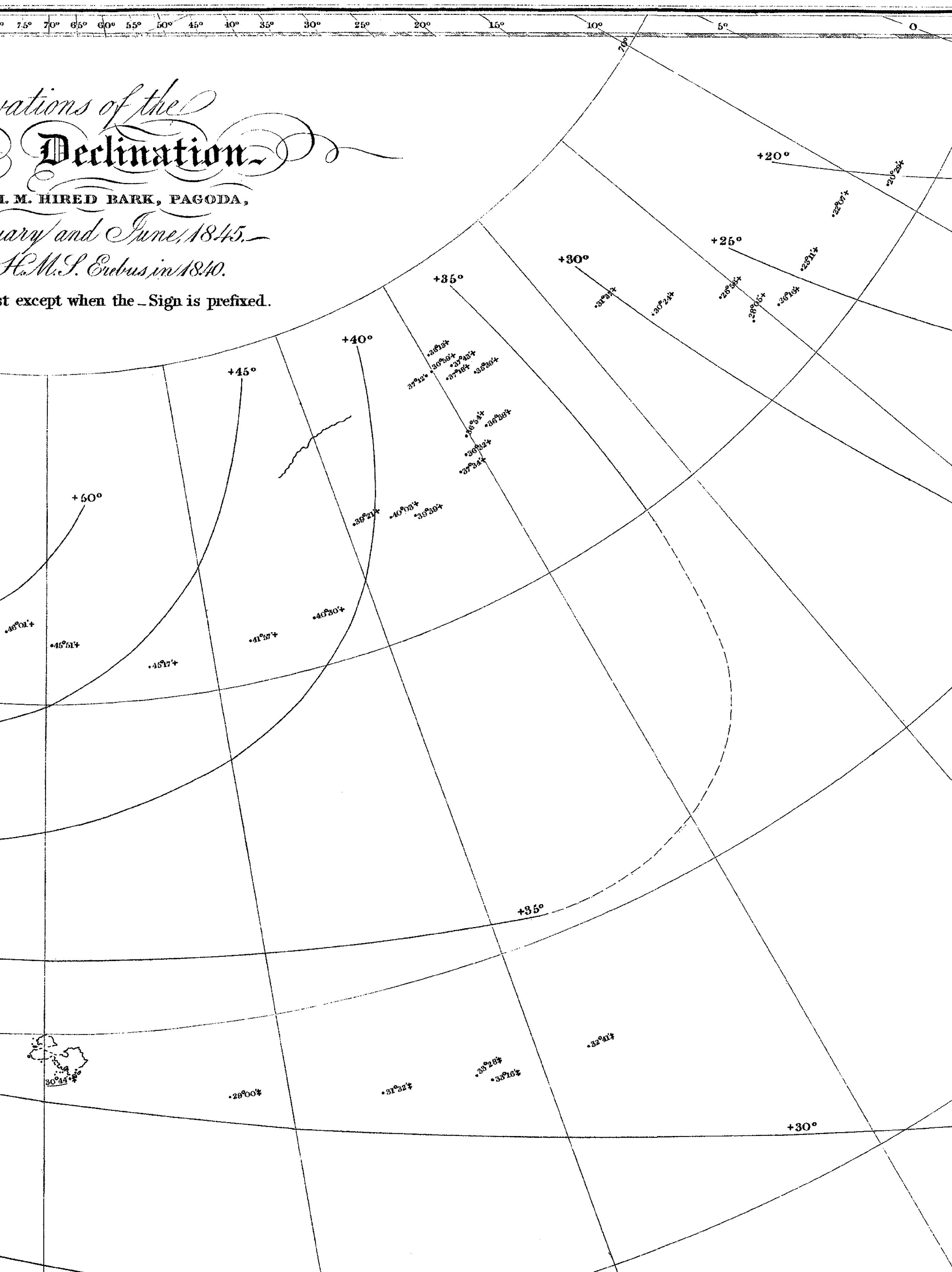
"In the Chart of 'Magnetic Declinations,' a series of observations made on board the 'Erebus' by Sir JAMES C. ROSS, between the Cape of Good Hope and Hobarton, have been laid down. These observations have been corrected for index error and local attraction, in the same way as the other observations during the Antarctic Expedition, the same constants being used.

"In the chart of intensities, Sir JAMES C. ROSS's observations between the Cape of Good Hope and Hobarton have also been entered. These observations are contained in Lieut.-Colonel SABINE's Contributions, No. III. and V. The Cape of Good Hope is the base station in this case; but the intensity there has been taken as 0·981; it is therefore necessary to reduce them to an intensity at the Cape $= 1{\cdot}0$, in order that they may compare with the intensities taken on board the Pagoda; this is done by multiplying each of them by $\frac{\cdot 981}{1{\cdot}000} = 1{\cdot}02$ nearly. The observations thus corrected are given in a table at the end of the 'Pagoda' observations, together with those of variation and inclination by Sir J. Ross, and the inclinations and intensities by Lieuts. SMITH and DAYMAN.

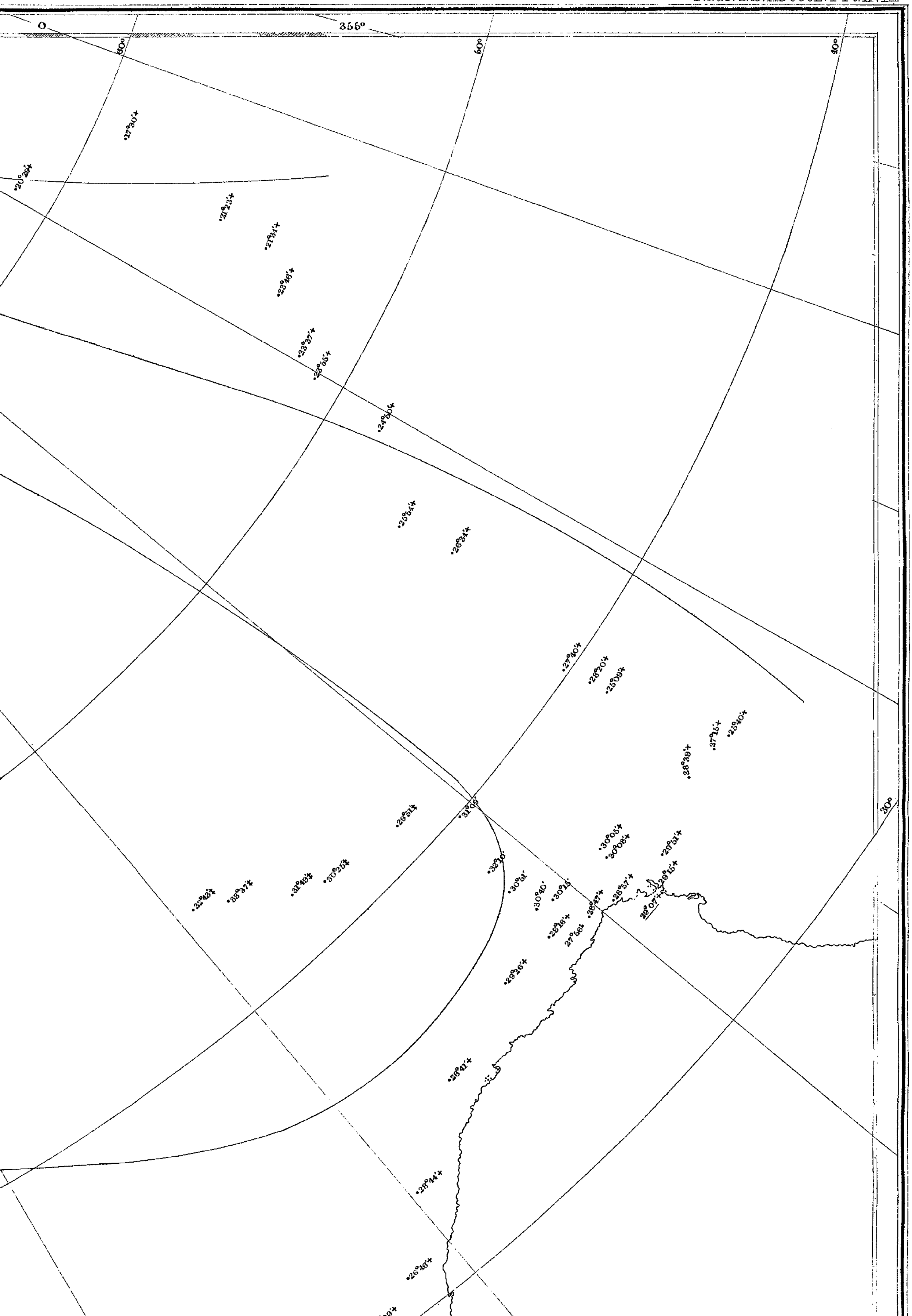
"In calculating the intensities observed by Lieut. SMITH, Hobarton has been taken as the base station, and the results by *weights only* used. The same has been done

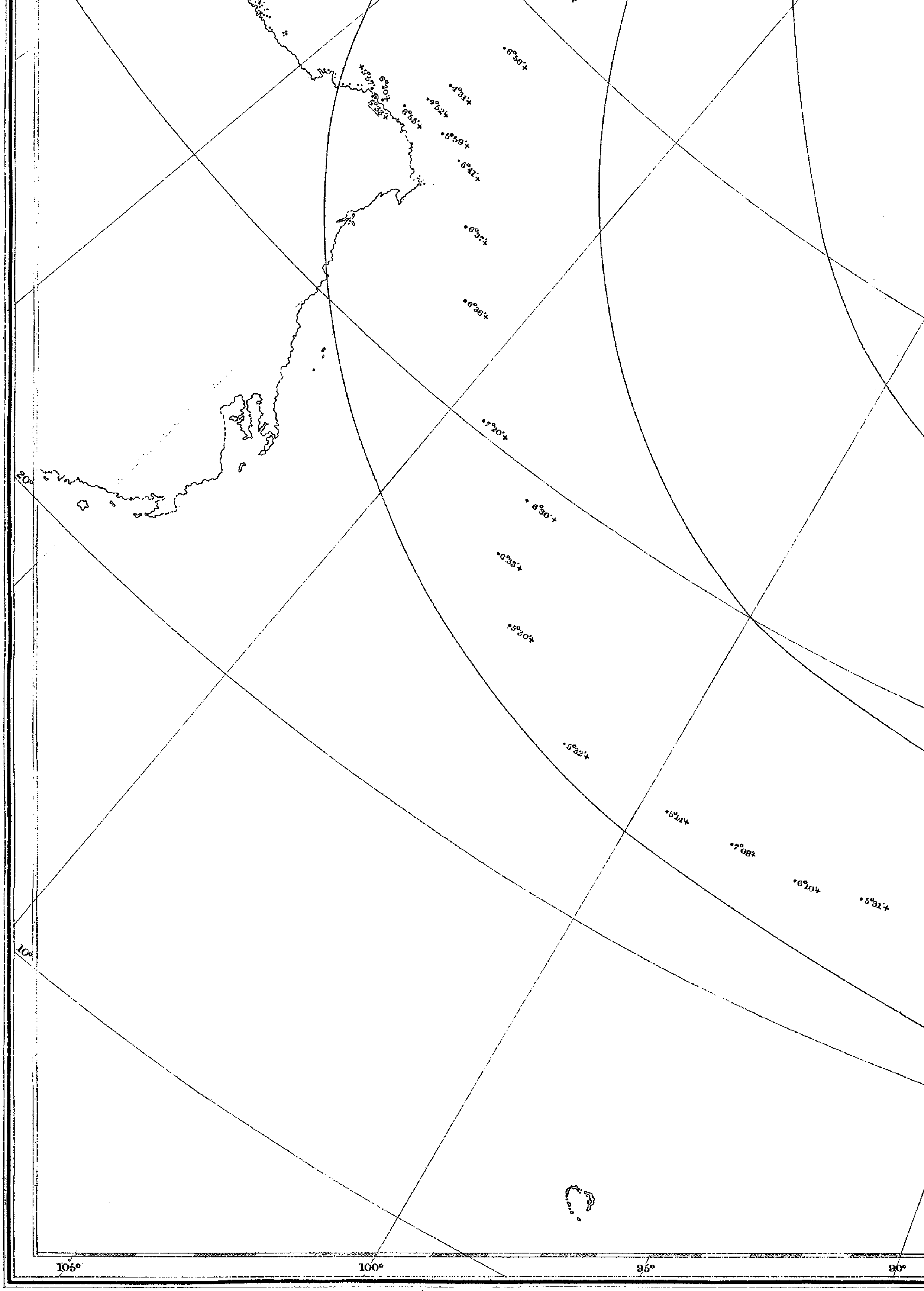

145°
140°
50°
60°
40°
30°
Line of no Declination
Phil. Trans. 1843.
+5°
+10°
+15°


140°
135°
130°
125°
120°
115°
110°
105°
100°
95°
90°
85°
80°
75°
70°
70°
Observations
Magnetic D
MADE ON BOARD H. M. HIRE
between January an
and on board H.M.S.
The Declination is West except w
+20°
+25°
+30°
+35°
+40°
+45°
+50°
+50°
+45°
+40°
+35°
+30°
+25°
41°02'+
39°50'
40°37'+
44°53'+
49°28'+
49°02'+
48°01'+
47°47'+
47°19'+
52°17'+
50°35'+
46°01'+
45°51'+
37°37'+
32°54'+
29°24'+
26°54'+
21°32'+
18°59'+
25°38'+
30°44'

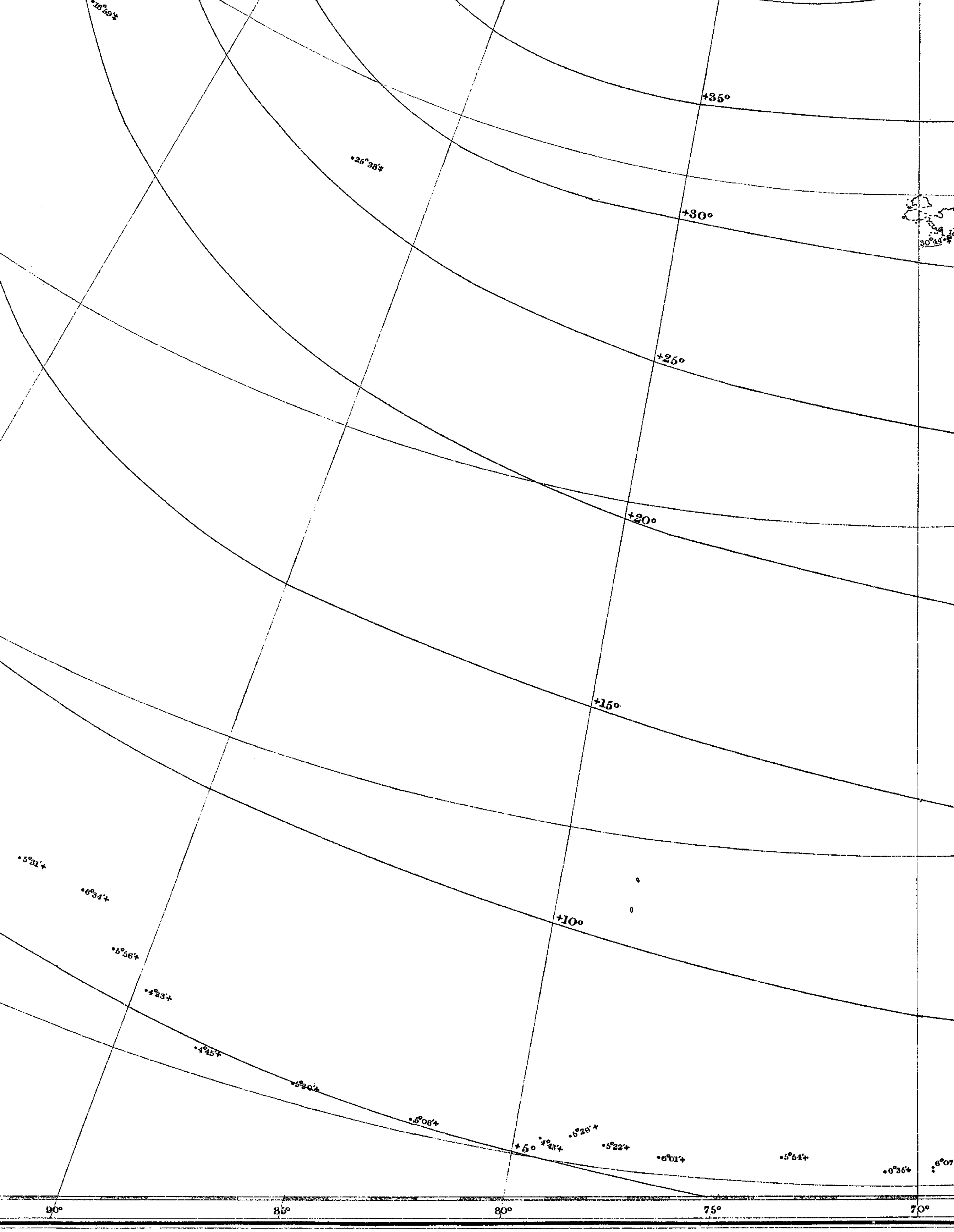


vations of the
Declination
. M. HIRED BARK, PAGODA,
uary and June, 1845.
H.M.S. Erebus in 1840.
st except when the – Sign is prefixed.
75° 70° 65° 60° 55° 50° 45° 40° 35° 30° 25° 20° 15° 10° 5° 0
70°
+20°
+25°
+30°
+35°
+40°
+45°
+50°
+35°
+30°

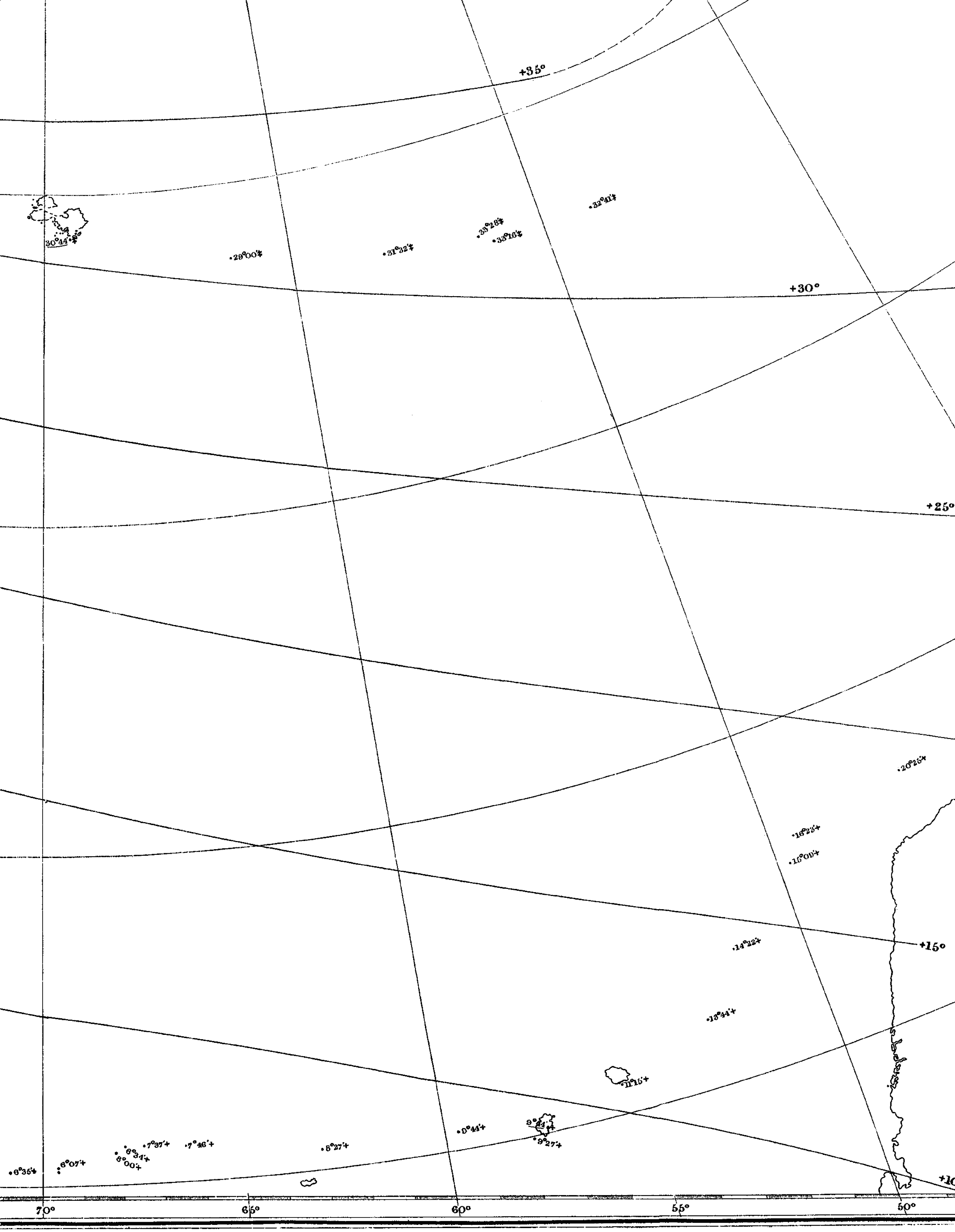

0
355°
50°
40°
30°



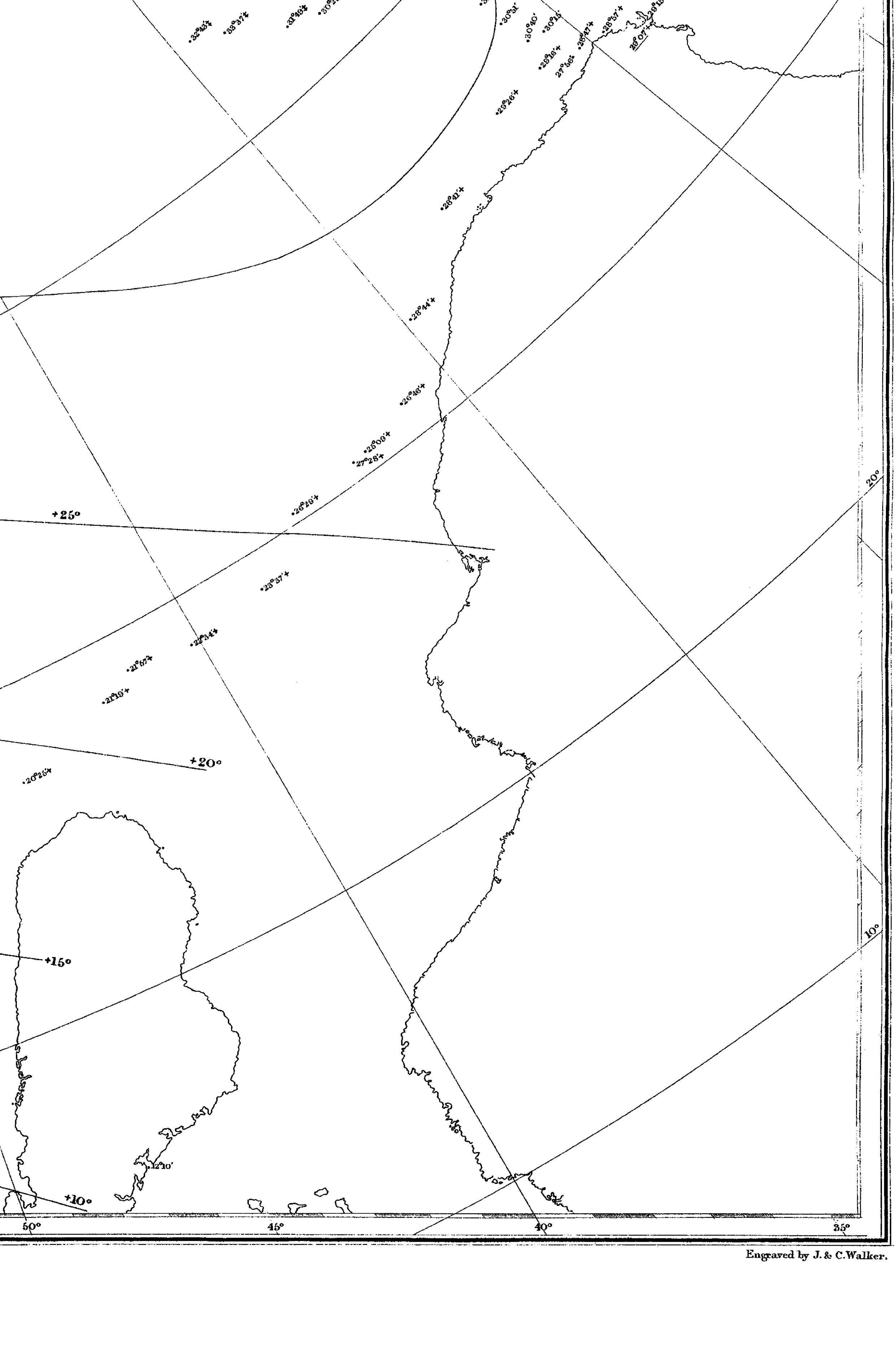
6°56'
5°37'
6°20'
5°33'
4°31'
4°52'
6°55'
5°59'
5°41'
6°37'
6°36'
7°20'
6°30'
6°33'
5°30'
5°32'
5°14'
7°08'
6°10'
5°31'
20°
10°
105°
100°
95°
90°



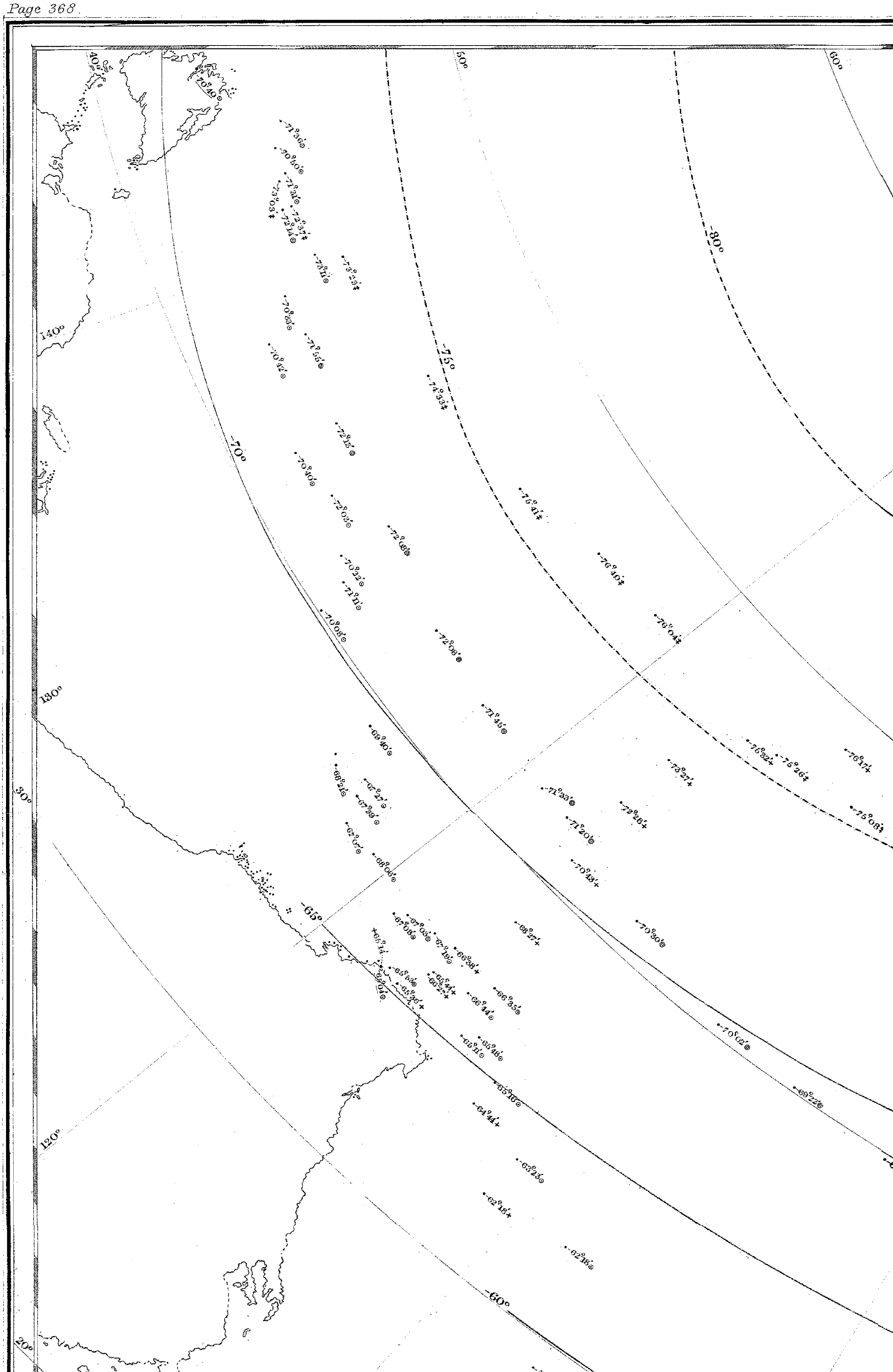
+...*Observations in H.M.S.*
‡......



...ns in H.M.S. Pagoda 1845.
.... Erebus 1840.



Engraved by J. & C. Walker.


40°
50°
60°
140°
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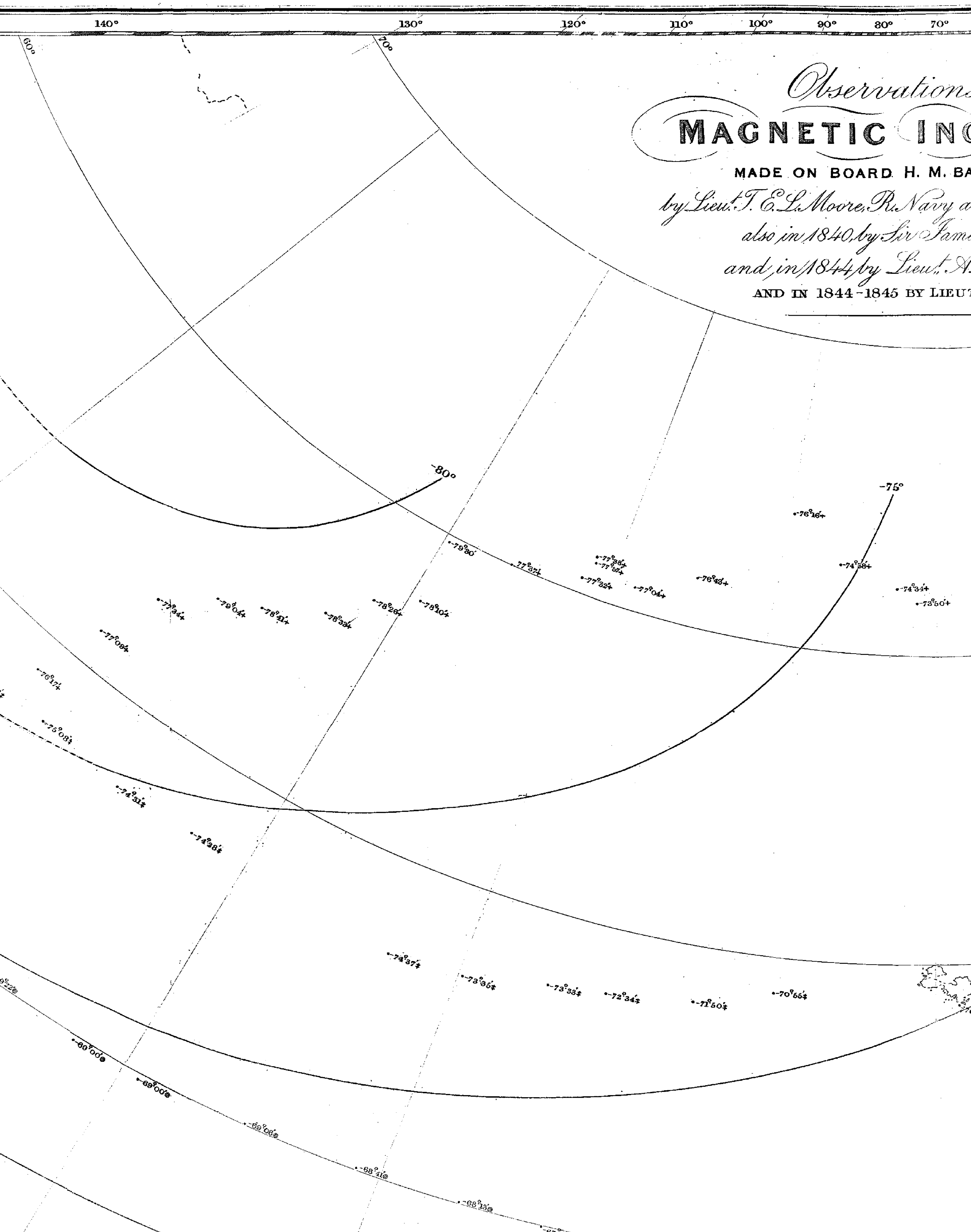
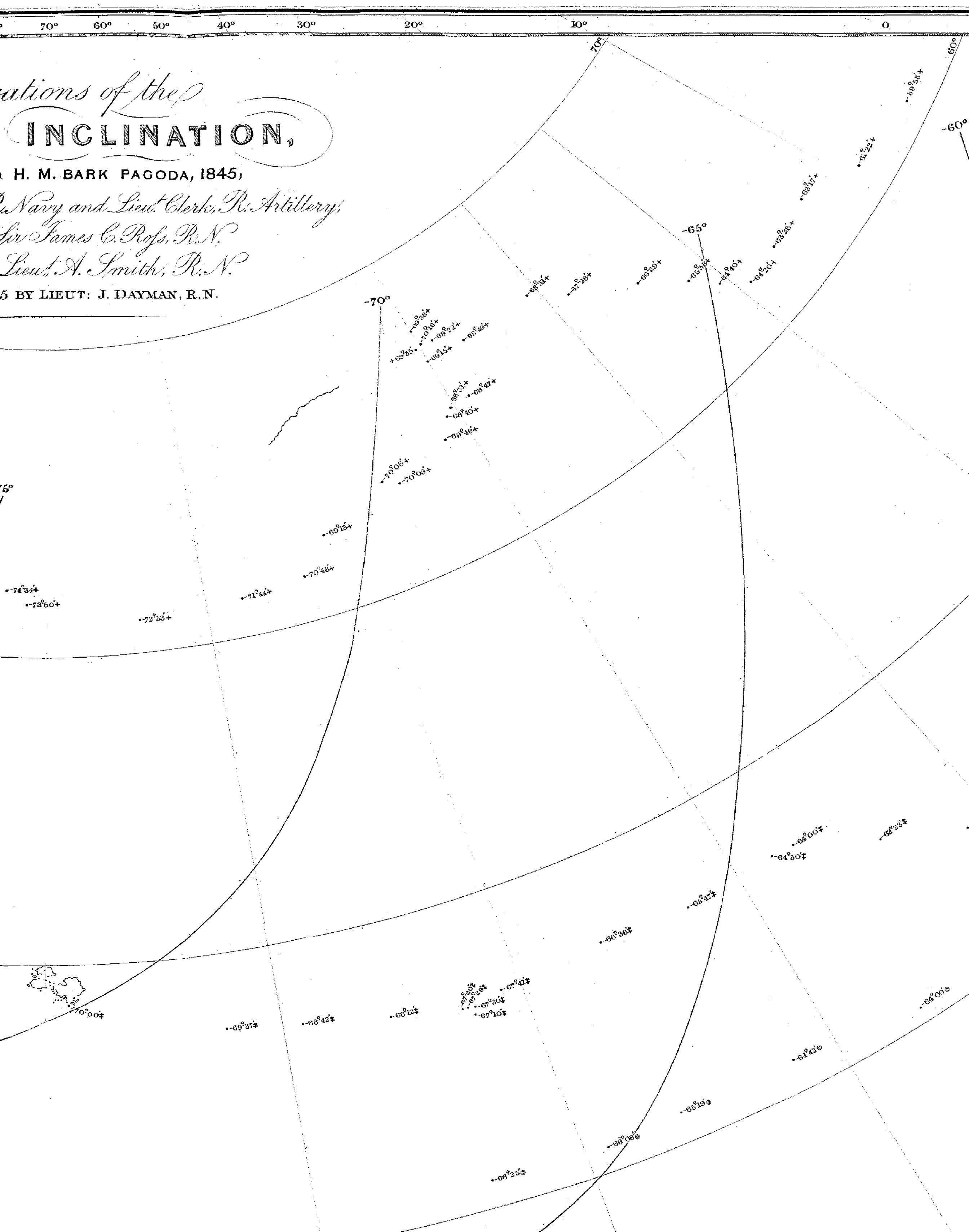
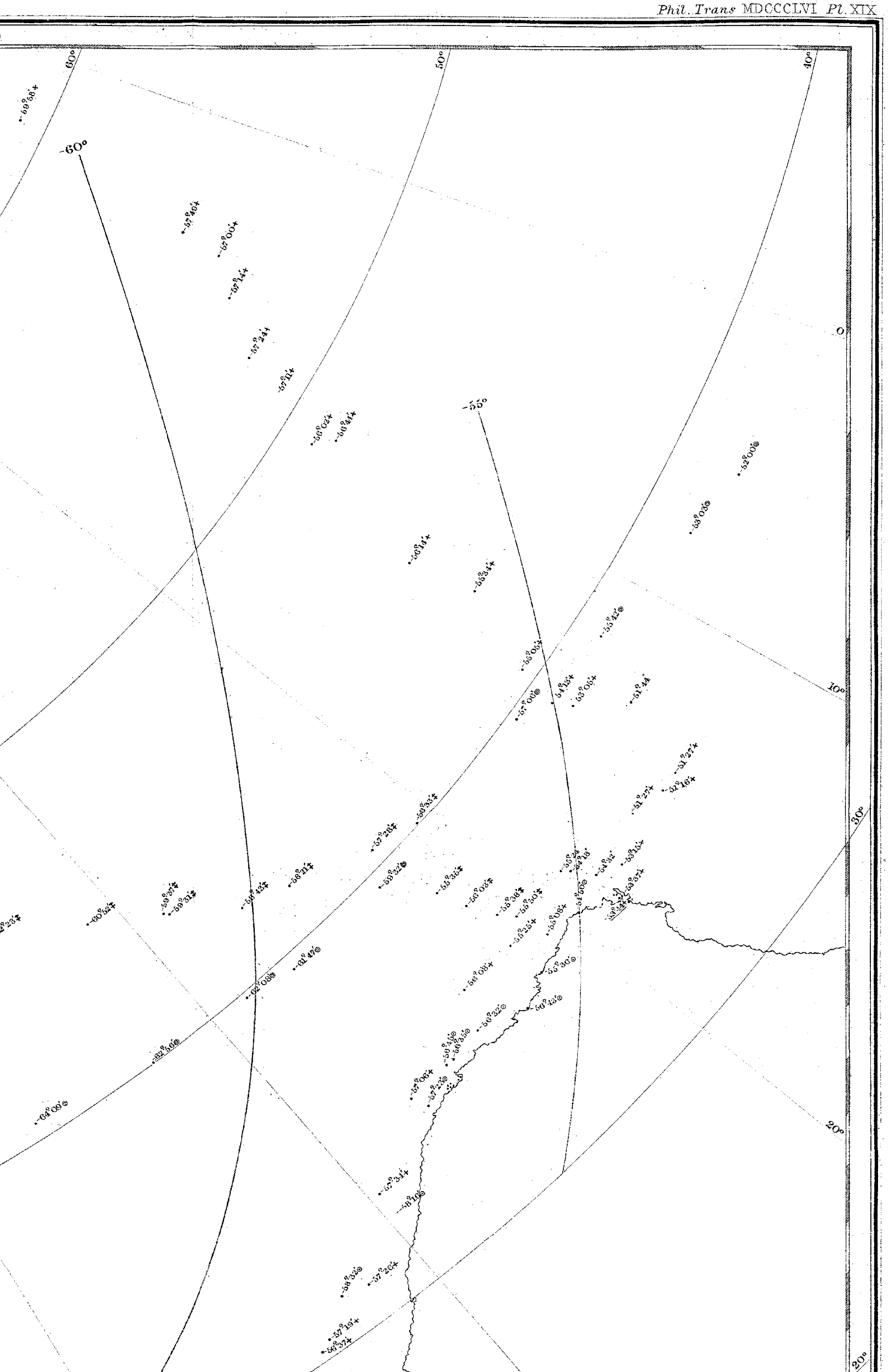
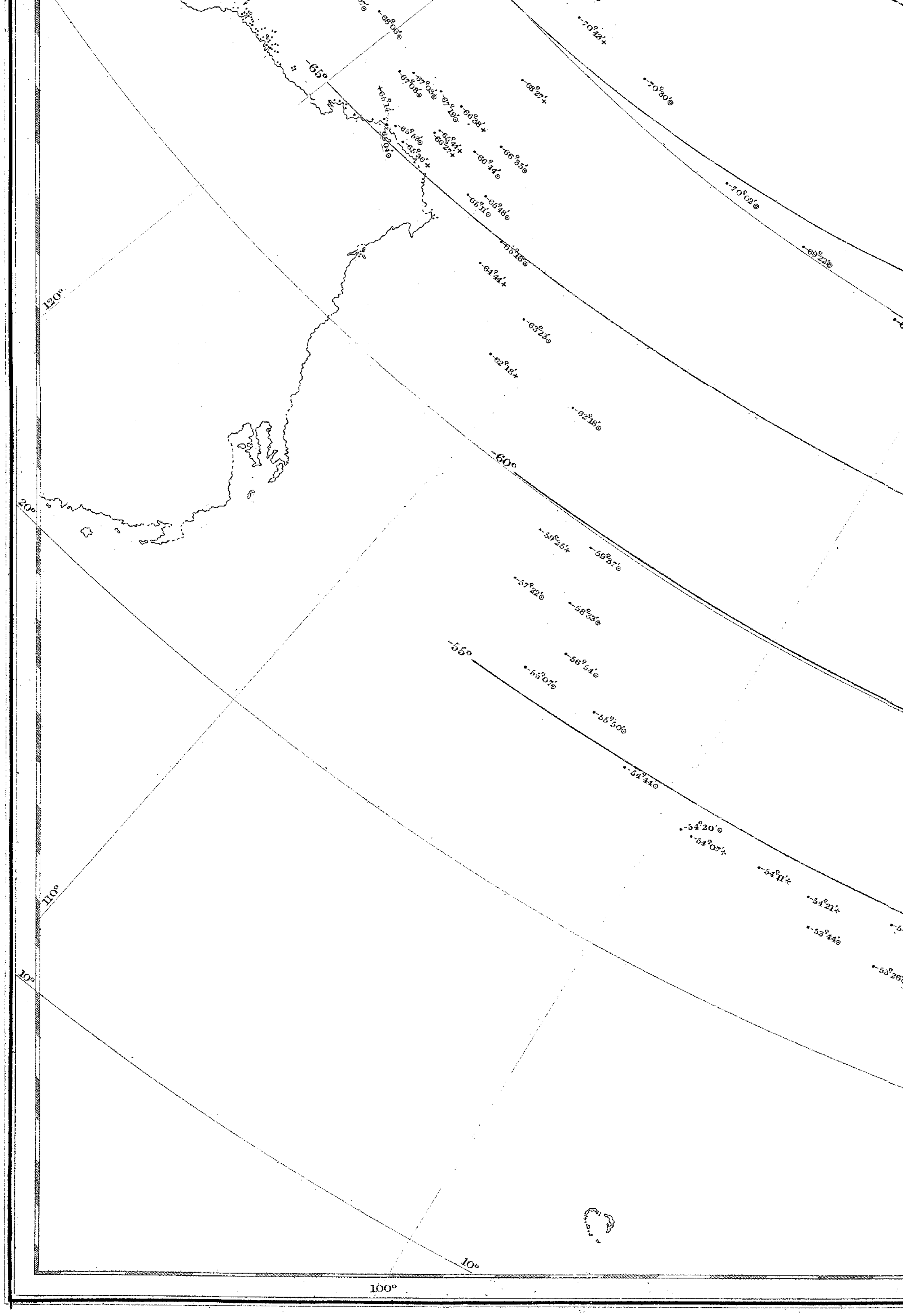
120°
20°
-80°
-75°
-70°
-65°
-60°


140°
130°
120°
110°
100°
90°
80°
70°
60°
70°
Observation
MAGNETIC IN
MADE ON BOARD H. M. BA
by Lieut. T. E. L. Moore, R. Navy a
also in 1840, by Sir Jame
and, in 1844, by Lieut. A
AND IN 1844-1845 BY LIEU
-80°
-75°

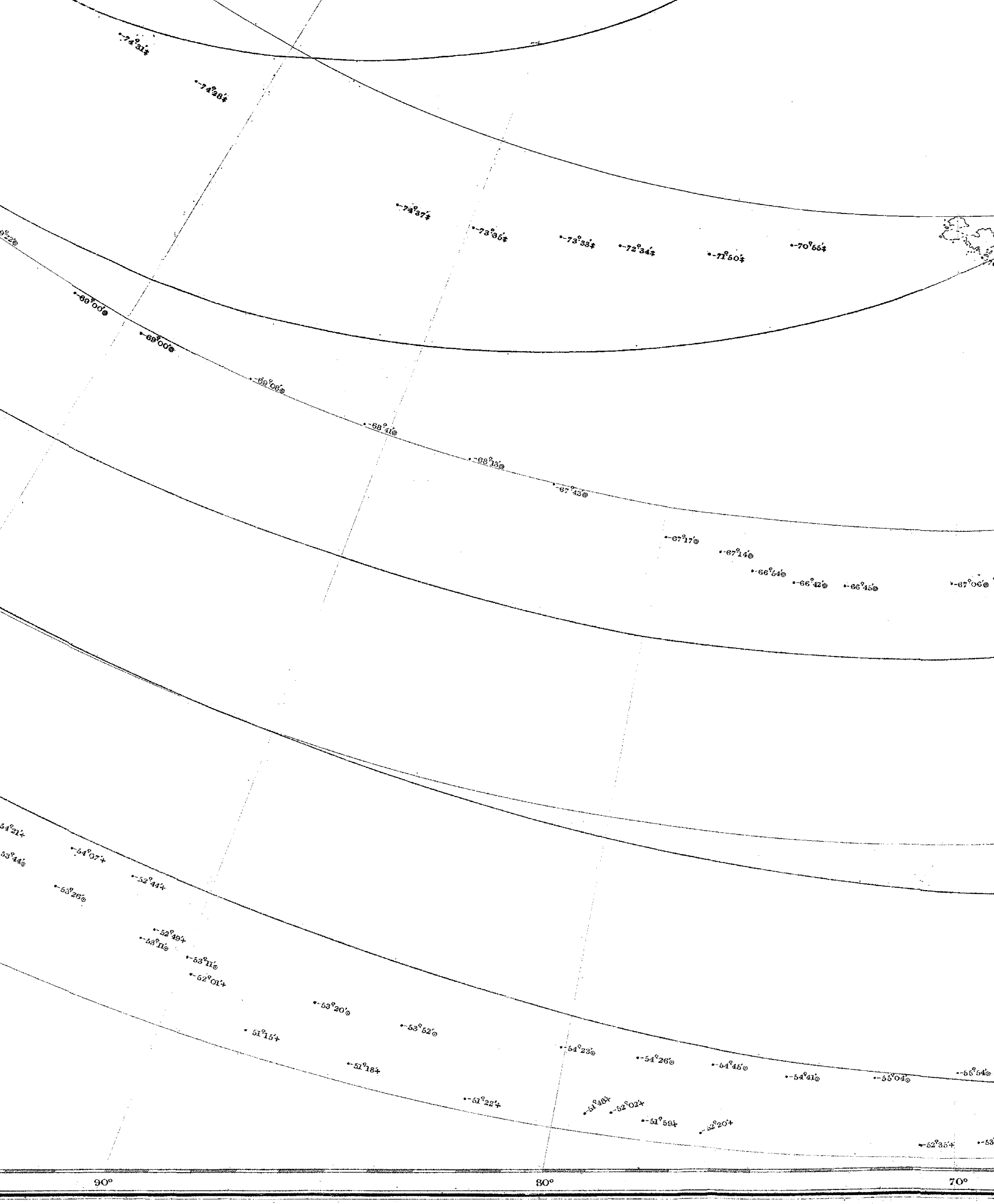


70° 60° 50° 40° 30° 20° 10° 0
ations of the
INCLINATION,
H. M. BARK PAGODA, 1845,
Navy and Lieut. Clerk, R. Artillery,
Sir James C. Ross, R.N.
Lieut. A. Smith, R.N.
5 BY LIEUT: J. DAYMAN, R.N.
-70°
-65°
-60°
70°
60°

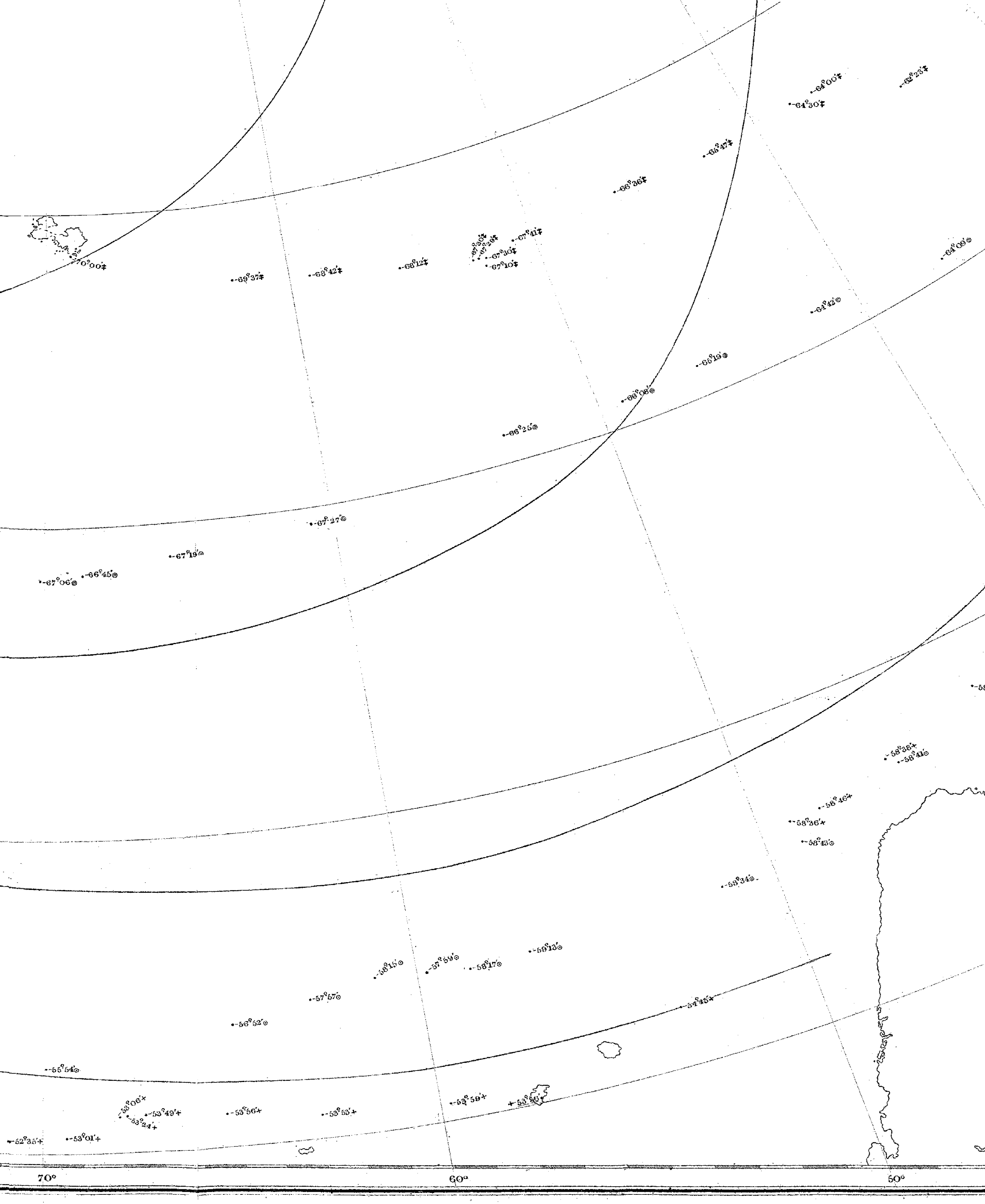




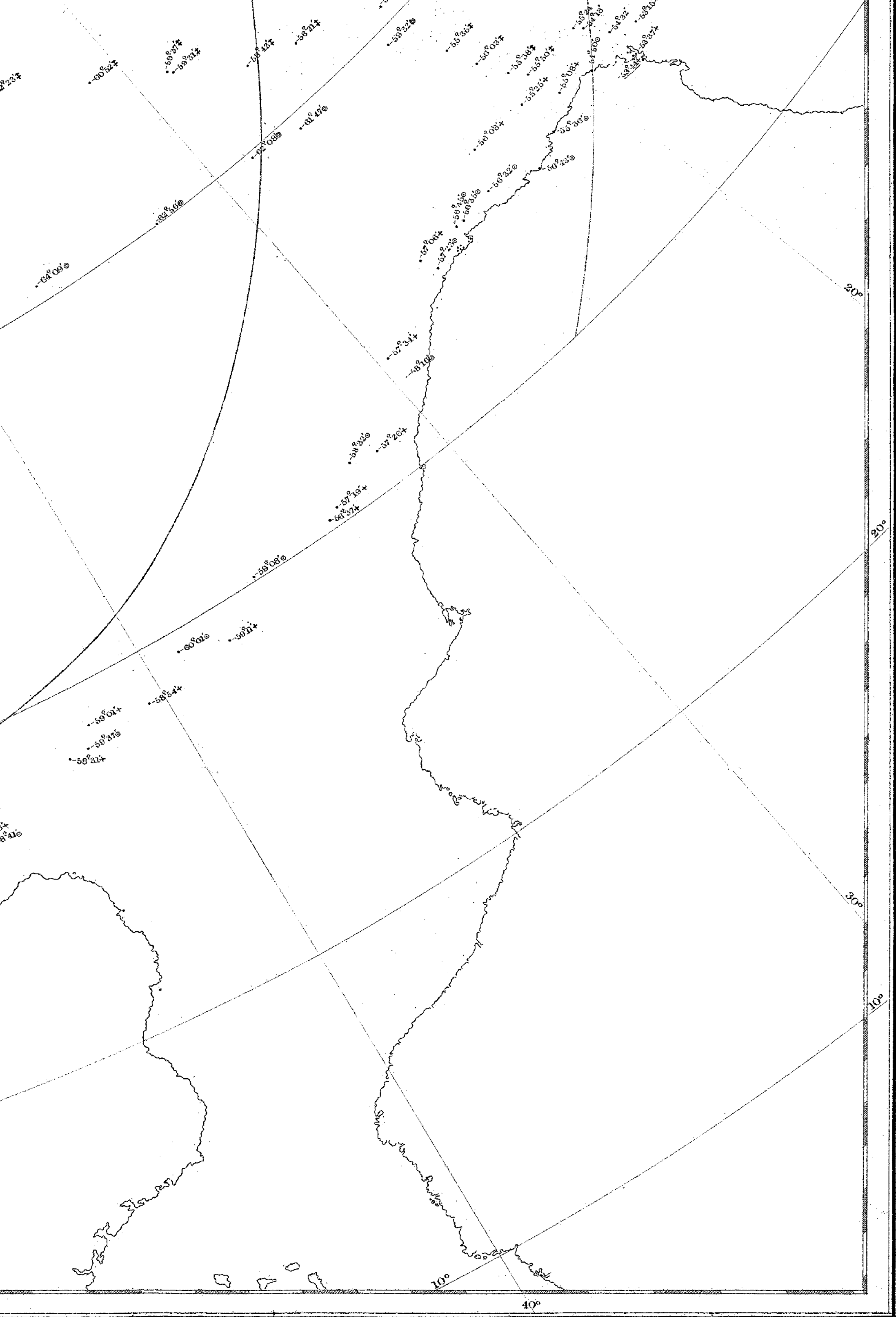
-65°
-60°
-55°
120°
20°
110°
10°
10°
100°



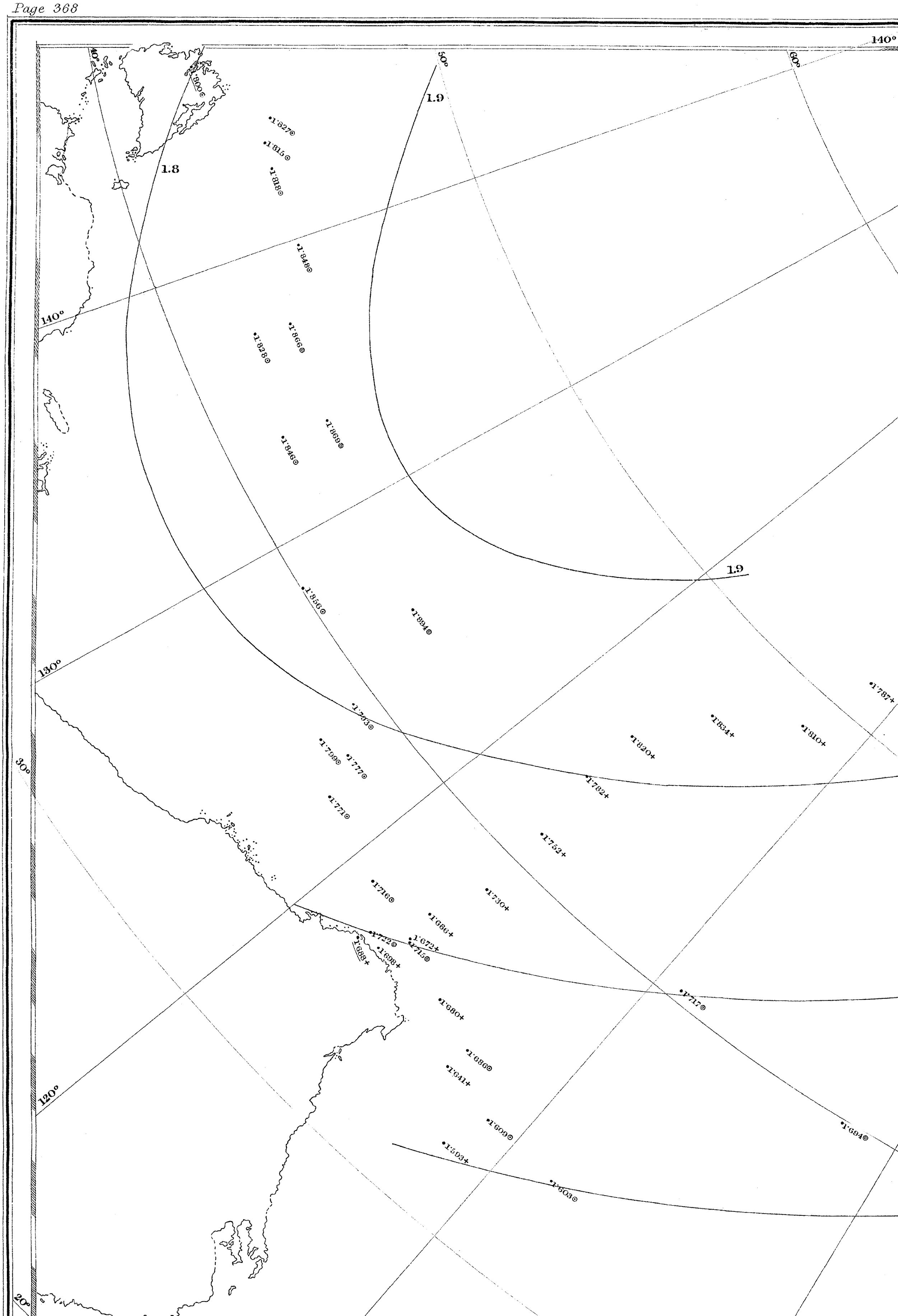
+ ..... *Observations in the Pagoda*
‡ ..... *Expedit*
◎ ..... *by Lieu.t A. Sm*
⊙ ..... *by Lieu.t J. Da*



n the Pagoda
.... Expedition of Sir J. C. Ross
y Lieu.t A. Smith R.N.
y Lieu.t J. Dayman R.N.



Engraved by J. & C. Walker.


140°
40°
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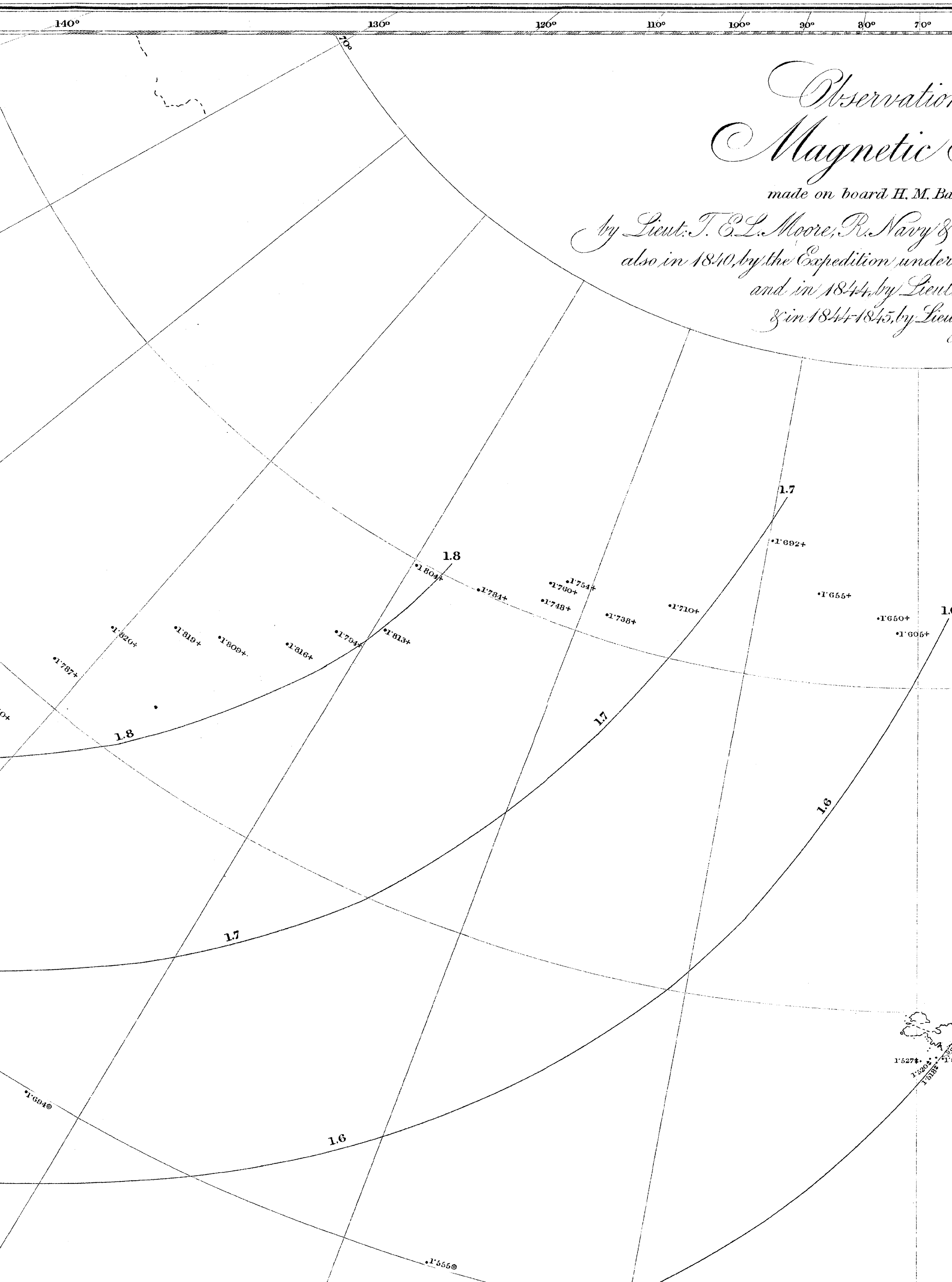
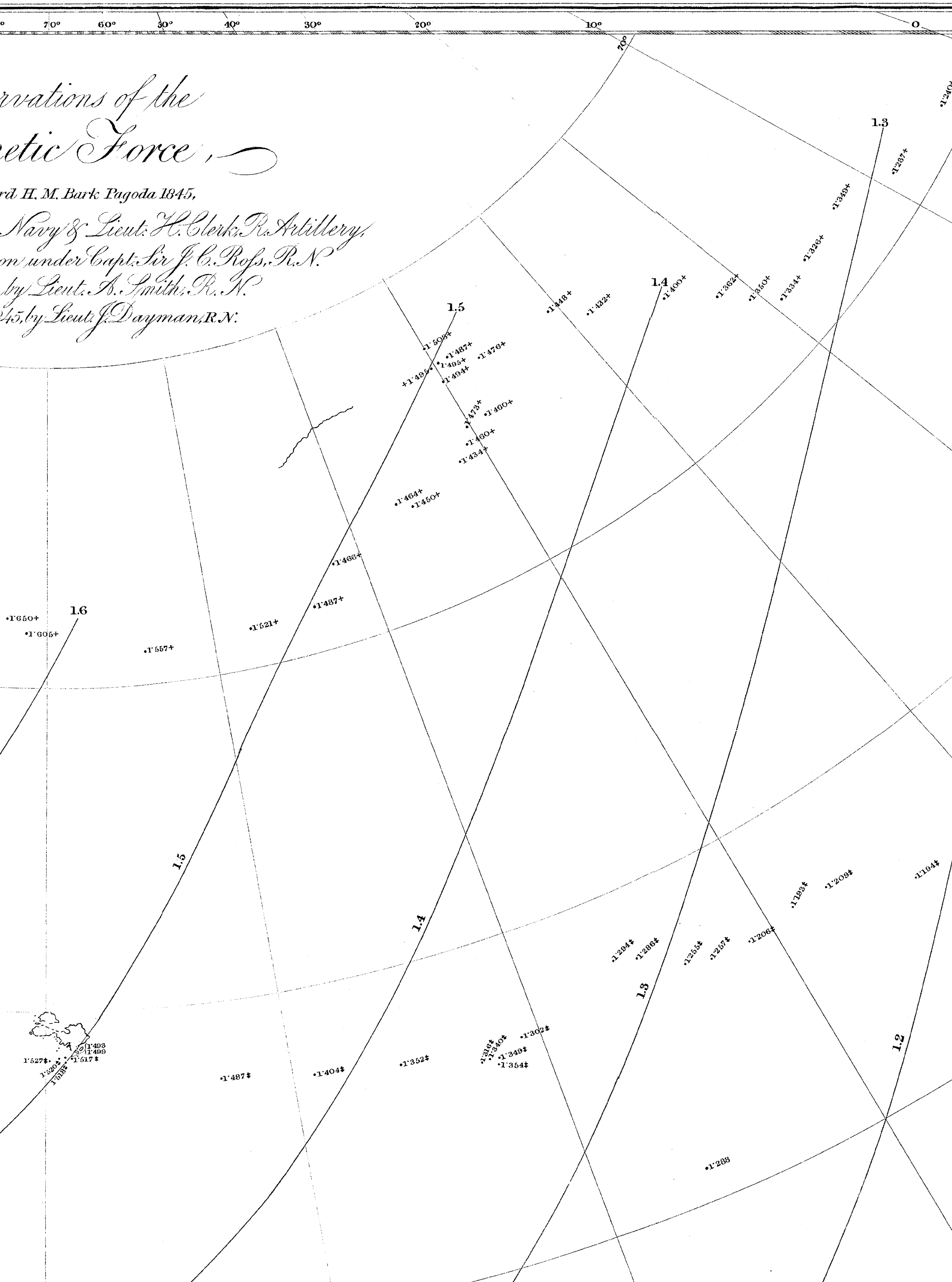
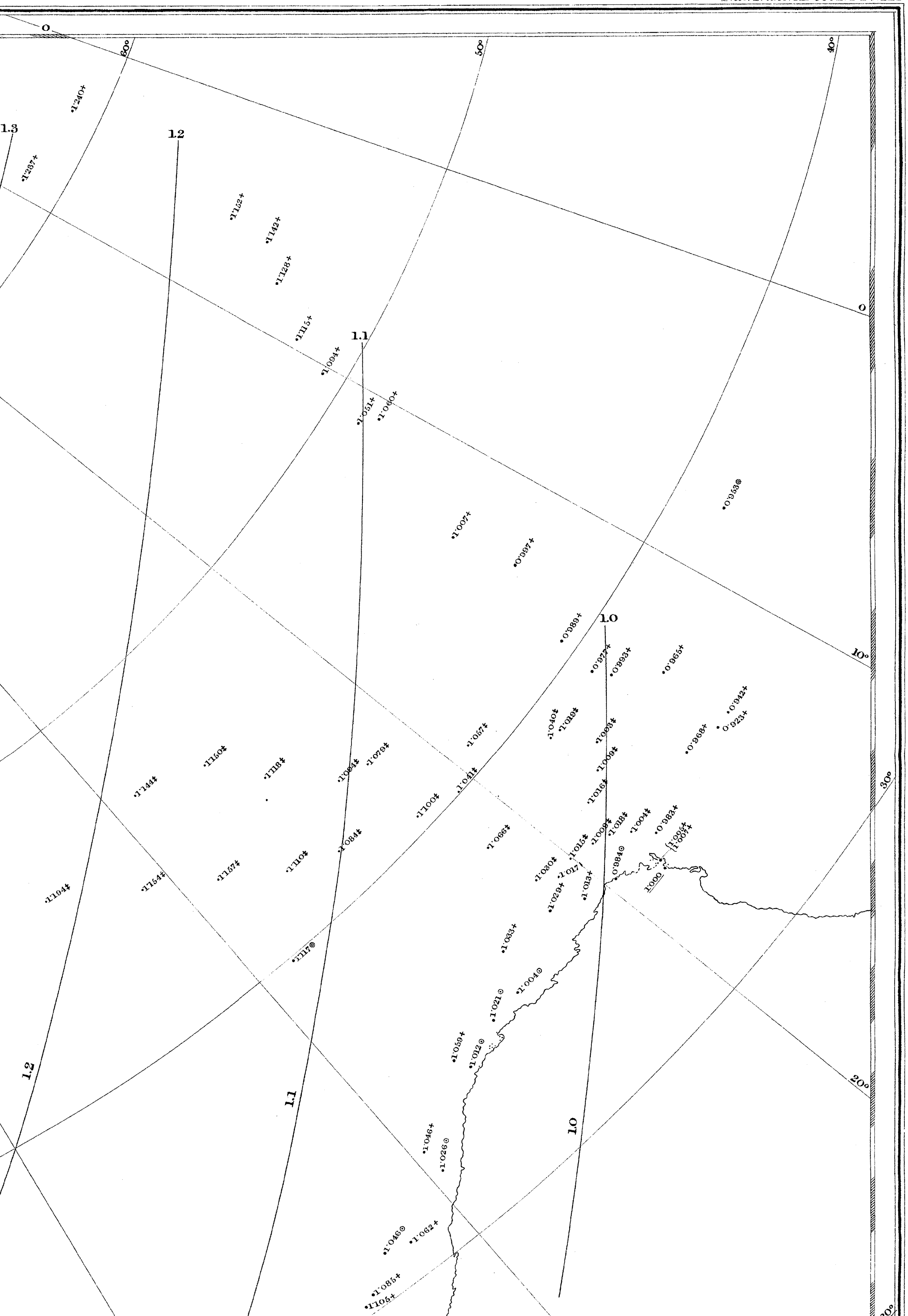
60°
1.9
1.8
140°
130°
30°
120°
20°
1.9



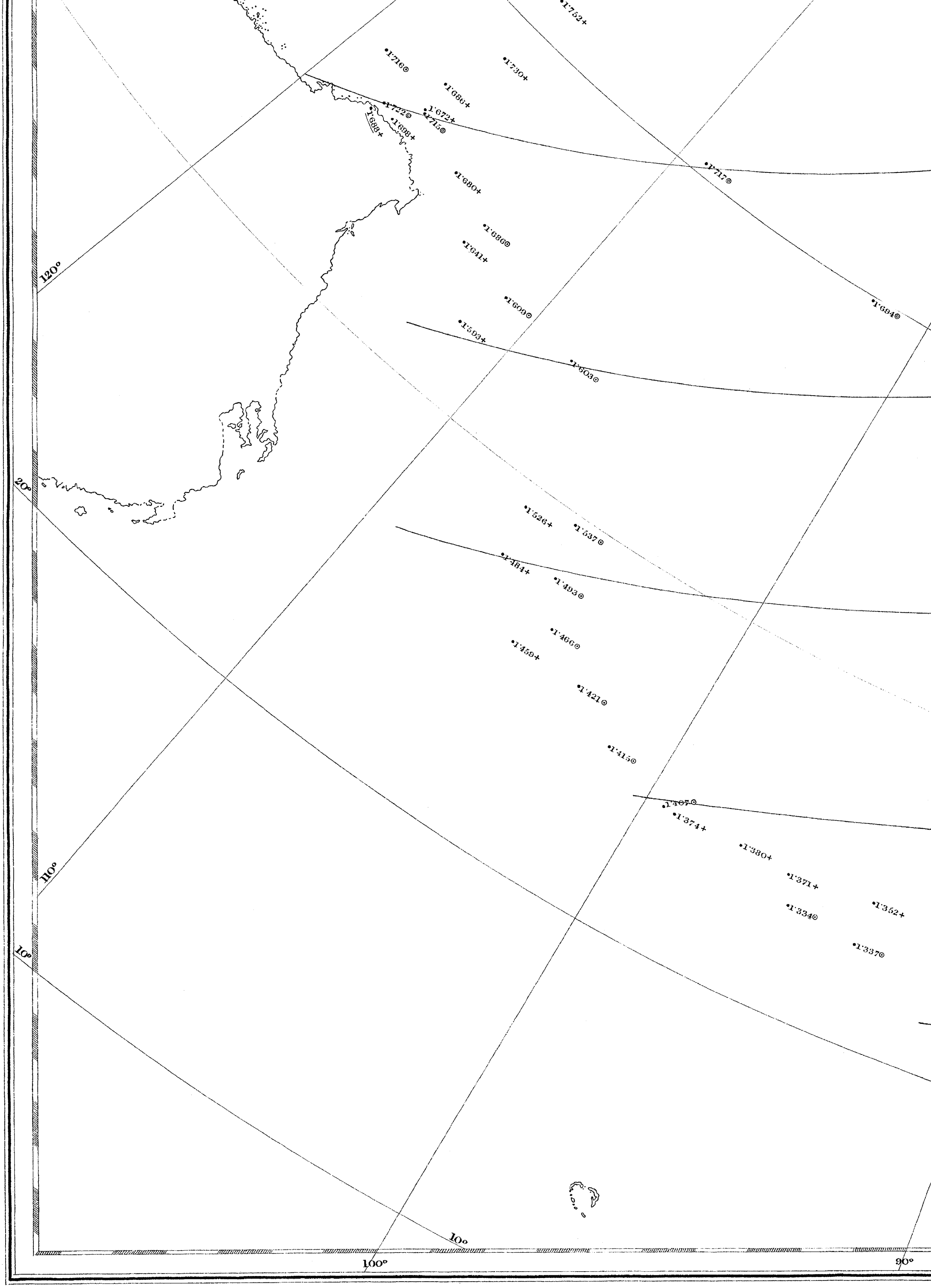
140°
130°
120°
110°
100°
90°
80°
70°
70°
Magnetic
made on board H. M.
by Lieut: T. E. L. Moore, R. Navy
also in 1840, by the Expedition
and in 1844, by
& in 1844-1845, by
1.8
1.8
1.7
1.7
1.7
1.6
1.6
1·804+
1·784+
1·760+
1·754+
1·748+
1·738+
1·710+
1·692+
1·655+
1·650+
1·605+
1·820+
1·819+
1·809+
1·816+
1·794+
1·813+
1·787+
1·694⊙
1·555⊙
1·527+

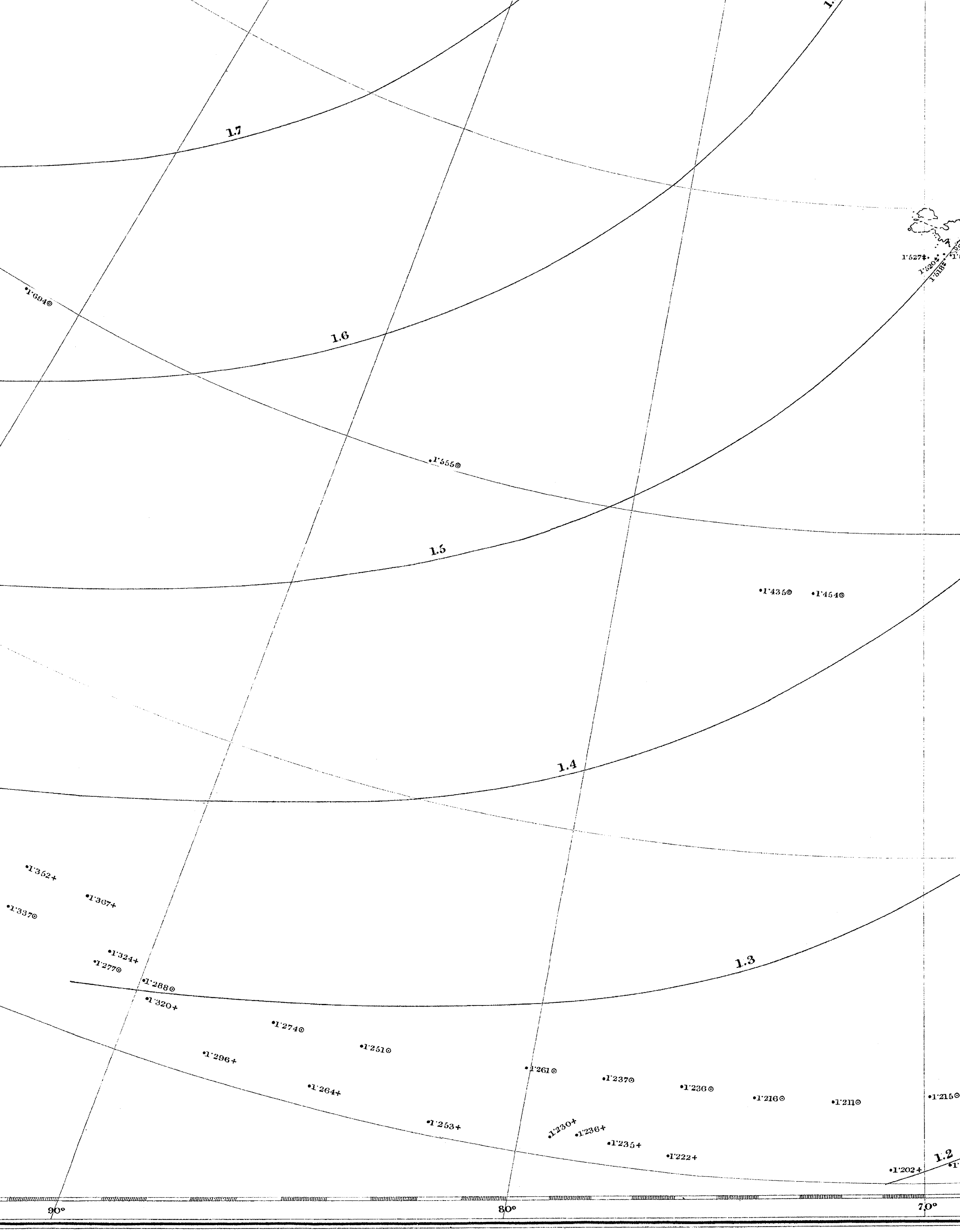


70° 60° 50° 40° 30° 20° 10° 0
70°
rvations of the
etic Force,
rd H. M. Bark Pagoda 1845,
Navy & Lieut: H. Clerk, R. Artillery,
on under Capt: Sir J. C. Ross, R.N.
by Lieut: A. Smith, R. N.
45, by Lieut: J. Dayman, R.N.
1.3
1.4
1.5
1.6
1.5
1.4
1.3
1.2

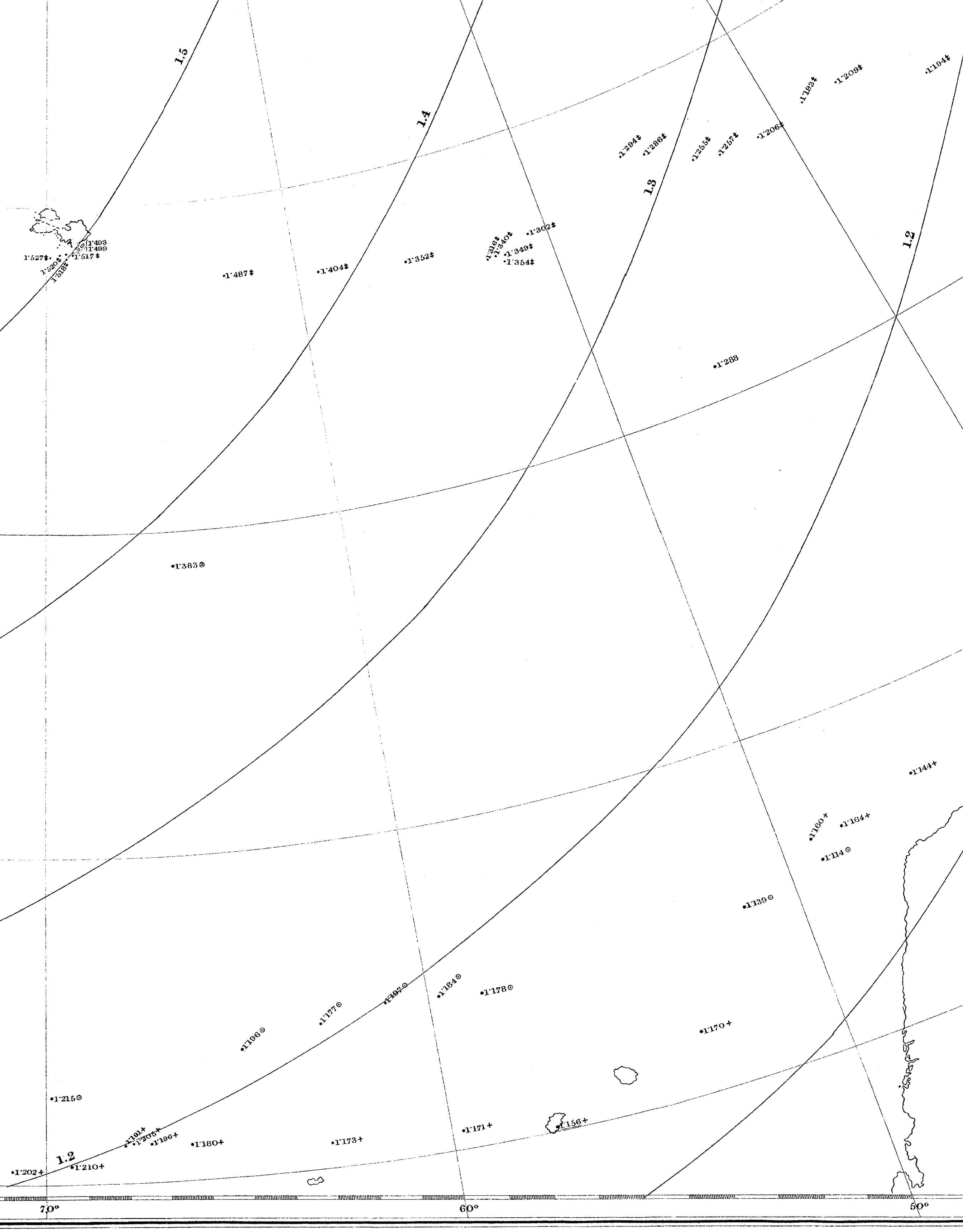


1.3
1.2
1.1
1.0
60°
50°
40°
30°
20°
10°
0
1'240+
1'237+
1'152+
1'142+
1'128+
1'115+
1'094+
1'051+
1'060+
1'007+
0'997+
0'953⊙
0'989+
1'000
1'117⊙
1'004⊙
1'021⊙
1'012⊙
1'026⊙
1'046⊙

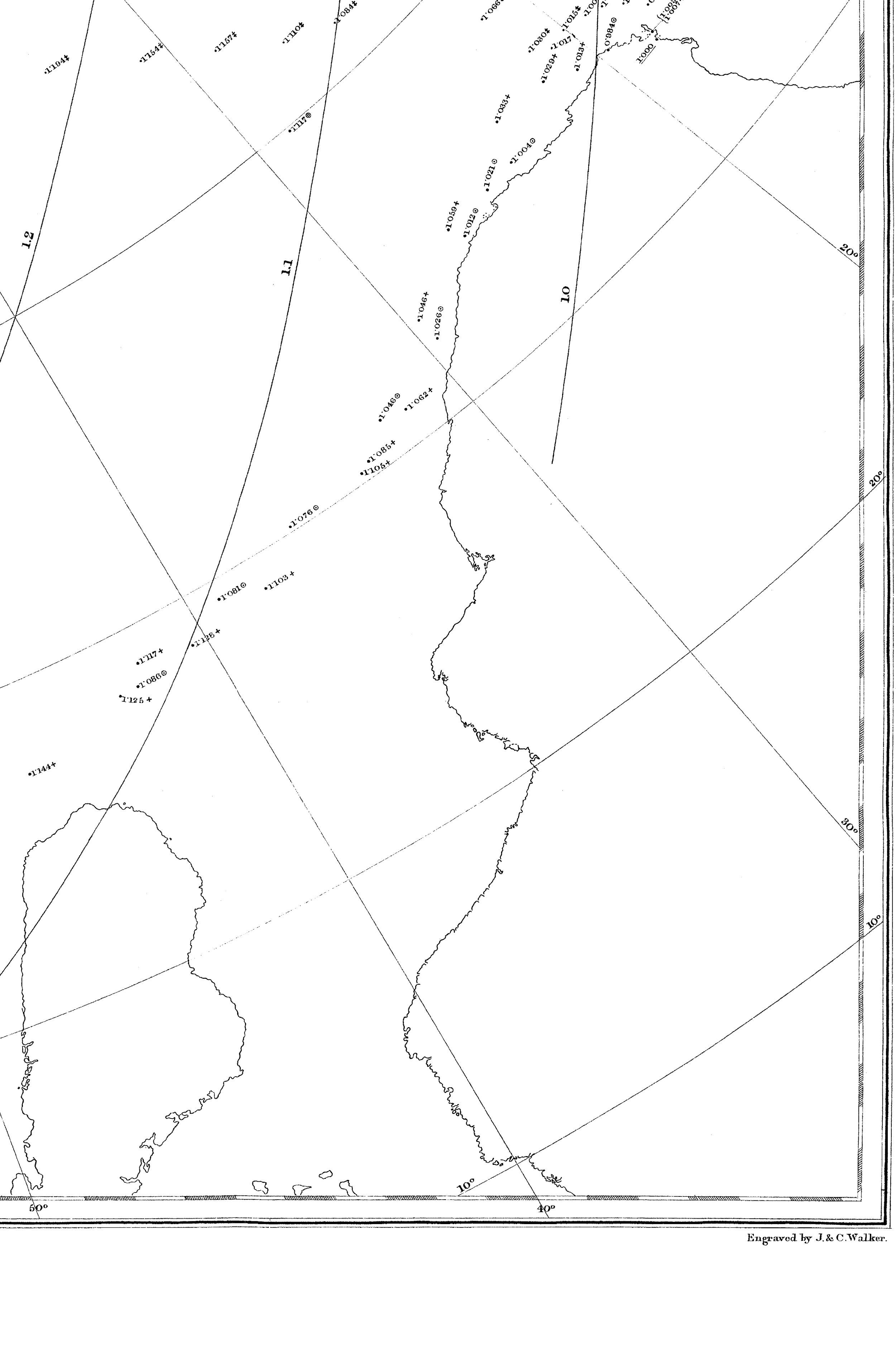

1·752+
1·716⊙
1·730+
1·686+
1·722⊙
1·672+
1·715⊙
1·698+
1·688+
1·717⊙
1·680+
1·686⊙
1·641+
120°
1·694⊙
1·609⊙
1·593+
1·603⊙
20°
1·526+
1·537⊙
1·484+
1·493⊙
1·466⊙
1·459+
1·421⊙
1·415⊙
1·407⊙
1·374+
1·380+
110°
1·371+
1·362+
1·334⊙
1·337⊙
10°
10°
100°
90°



+ ..... *Observations in the Pagod*
‡ ..... *Expea*
⊚ ..... *by Lieut.t A.*
⊙ ..... *by Lieut.t J.*



in the Pagoda
.... Expedition of Sir J.C.Ross
by Lieut.t A.Smith R.N.
by Lieut.t J.Dayman R.N.



Engraved by J. & C. Walker.

with the series by Lieut. DAYMAN, the weights of two grains and three grains having been observed daily; the following observations with weights made at the observatory, Hobarton, give the formulæ for calculation:—

(I.) Lieut. SMITH'S. $\left\{\begin{array}{l} 2 \text{ grains } v = 10^\circ\ 33'; \quad I = 1{\cdot}80;\ I' = {\cdot}3296 \operatorname{cosec} v'. \\ 3 \text{ grains } v = 16\ \ 05; \quad I = 1{\cdot}80:\ I' = {\cdot}4987 \operatorname{cosec} v'. \end{array}\right.$

(II.) Lieut. DAYMAN'S. $\left\{\begin{array}{l} 1 \text{ grain } v = \ \ 5\ \ 19 \\ 2 \text{ grains } v = 10\ \ 35 \\ 3 \text{ grains } v = 16\ \ 20 \\ 4 \text{ grains } v = 21\ \ 50 \\ 5 \text{ grains } v = 27\ \ 41 \\ 6 \text{ grains } v = 34\ \ 08 \end{array}\right\}$ From these we obtain the following values of v for 2 and 3 grains; viz.—

for 2 grains $v = 10^\circ\ 43'$.
for 3 grains $v = 16\ \ 11$.
Hence for 2 grains $I' = {\cdot}3347 \operatorname{cosec} v'$.
for 3 grains $I' = {\cdot}5017 \operatorname{cosec} v'$.

"In correcting these observations the same plan has been pursued as with the dip observations. As Lieut. SMITH'S observations required no correction in the latter case, so none has been applied to the intensities; and Lieut. DAYMAN'S have been corrected from the same table as was used for the 'Pagoda' observations. No corrections have been applied for the effect of temperature; but they are probably so small as not to affect the results."

Observations of the Declination made on board Her Majesty's hired Bark "Pagoda," from the 10th of January to the 23rd of June 1845.

The Observers are distinguished as follows:—M. Lieut. Moore; B. Mr. Bodie, Master; Cl. Lieut. Clerk; Cm. Mr. Comber, Mate; T. Mr. Tufnell, and Bn. Mr. Burdon, Midshipmen. West Declination characterized by the sign +.

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Declination.		Remarks.
1845. Jan. 10 A.M.	−34° 42′	17° 36′	M.	+29° 04′	w.	−53° 15′	+16′	+47′	+30° 07′	+29° 51′	Card A. Index correction +47′ by observations made at the observatory, Cape of Good Hope.
	−34 42	17 36	M.	+29 12	w.		+16	+47	+30 15		
	−34 42	17 36	M.	+28 50	w. ½ s.		+15	+47	+29 52		
	−34 42	17 36	Cl.	+28 06	w.		+16	+47	+29 09		
11 A.M.	−35 26	15 08	Cl.	+27 31	w.s.w.	−51 27	+11	+47	+28 29	+28 39	
	−35 26	15 08	M.	+27 51	w.s.w.		+11	+47	+28 49		
	−35 26	15 08	Cl.	+27 43	w.s.w.		+11	+47	+28 41		
	−35 26	15 08	M.	+27 41	s.w.byw.¼w.		+10	+47	+28 38		
12 A.M.	−35 17	14 00	B.	+25 45	w. by n.	−51 16	+03	+47	+26 35	+27 15	
	−35 17	14 00	B.	+26 23	w. by n.		+03	+47	+27 13		
	−35 17	14 00	B.	+27 06	w. by n.		+03	+47	+27 56		
13 A.M.	−35 10	13 25	B.	+24 37	s.w. by w.	−51 27	+07	+47	+25 31	+25 40	
	−35 10	13 25	B.	+25 04	s.w. by w.		+07	+47	+25 58		
	−35 10	13 25	B.	+24 38	s.w. by w.		+07	+47	+25 32		
15 P.M.	−38 43	14 25	M.	+24 22	s.s.w. ½ w.	−53 05	00	+47	+25 09	+25 09	
16 A.M.	−39 00	14 38	M.	+27 13	s.w.byw.½w.	−54 13	+18	+47	+28 18	+28 20	
	−39 01	14 45	Cm.	+25 44	s.w. by s.		+06	+47	+26 37		
16 P.M.	−39 12	14 42	M.	+27 48	s.w. by s.		+06	+47	+28 41		
	−39 20	14 12	M.	+28 25	s.w. by s.		+06	+47	+29 18		
	−39 22	14 25	B.	+27 10	s.w. by s.		+06	+47	+28 03		
	−39 22	14 25	B.	+28 28	s.w. by s.		+06	+47	+29 21		
	−39 22	14 25	B.	+27 01	s.w. by s.		+06	+47	+27 54		
	−39 22	14 25	B.	+27 49	s.w. by s.		+06	+47	+28 42		
	−39 22	14 25	B.	+27 28	s.w. by s.		+06	+47	+28 21		
	−39 22	14 25	B.	+28 28	s.w. by s.		+06	+47	+29 21		
	−39 22	14 25	Cm.	+26 26	s.w. by s.		+06	+47	+27 19		
17 A.M.	−40 08	14 32	B.	+26 17	s.w. by w.	−55 05	+16	+47	+27 20	+27 40	
	−40 08	14 32	B.	+25 18	s.w. by w.		+16	+47	+26 21		
	−40 09	14 33	M.	+25 33	s.w. by w.		+16	+47	+26 36		
	−40 12	14 39	Cl.	+26 56	s.w. by w.		+16	+47	+27 59		
	−40 16	14 36	T.	+27 34	s.w. by w.		+16	+47	+28 37		
	−40 18	14 35	T.	+26 54	s.w. by w.		+16	+47	+27 57		
	−40 15	14 37	Cm.	+27 04	s.w. by w.		+16	+47	+28 07		
	−40 15	14 37	Cm.	+27 12	s.w. by w.		+16	+47	+28 15		
	−40 14	14 37	Cm.	+26 00	s.w. by w.		+16	+47	+27 03		
	−40 15	14 38	T.	+26 00	s.w. by w.		+16	+47	+27 03		
	−40 24	14 32	M.	+27 57	s.w. by w.		+16	+47	+29 00		
19 A.M.	−44 45	13 19	Cl.	+25 09	s.s.w. ½ w.	−56 14	+04	+47	+26 00	+26 34	Ship very unsteady; heavy sea.
	−44 45	13 19	M.	+23 05	s.s.w. ½ w.		+04	+47	+23 56		
	−44 45	13 19	B.	+27 40	s.s.w.		+02	+47	+28 29		
	−44 45	13 19	Cm.	+27 00	s.s.w.		+02	+47	+27 49		
20 A.M.	−46 24	13 34	B.	+24 51	s.w. by w.	−56 08	+19	+47	+25 57	+25 54	
	−46 24	13 34	B.	+24 31	s.w. by w.		+19	+47	+25 37		
	−46 24	13 34	B.	+25 02	s.w. by w.		+19	+47	+26 08		
22 A.M.	−48 27	10 51	B.	+23 08	s.w. by s.	−56 44	+12	+47	+24 07	+24 50	
	−48 27	10 51	B.	+22 41	s.w. by s.		+12	+47	+23 40		
	−48 27	10 51	M.	+24 40	s.w. by s.		+12	+47	+25 39		
	−48 27	10 51	Cl.	+24 54	s.w. by s.		+12	+47	+25 53		

Observations of Declination. (Continued.)

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Declination.		Remarks.
1845.	° ′	° ′		° ′		° ′	° ′	′	° ′	° ′	
Jan. 23 A.M.	−50 30	10 25	M.	+22 30	s.w. ½ s.		+ 16	+47	+23 33		
	−50 31	10 25	Cm.	+23 38	s.w. by s.		+ 16	+47	+24 41		
	−50 31	10 25	Cl.	+24 27	s.w. ½ s.		+ 16	+47	+25 30		
23 P.M.	−50 48	10 17	M.	+23 18	s.w.byw.½w.		+ 16	+47	+24 21		
	−50 50	10 20	Cl.	+21 09	s.w. by w.	−57 11	+ 16	+47	+22 12	+23 55	
	−50 58	10 10	M.	+23 14	s.w.		+ 16	+47	+24 17		
	−50 58	10 10	Cl.	+22 26	s.w.		+ 16	+47	+23 29		
	−50 58	10 09	T.	+22 15	s.w.		+ 16	+47	+23 18		
24 A.M.	−51 45	9 34	B.	+23 11	s.w. by w.		+ 25	+47	+24 23		
	−51 45	9 34	M.	+20 06	s.w. by w.	−57 39	+ 25	+47	+21 18	+22 37	
	−51 45	9 34	Cl.	+20 58	s.w. by w.		+ 25	+47	+22 10		
24 P.M.	−51 47	9 34	Cm.	+22 00	s.w.byw.½w.		+ 29	+47	+23 16		
	−51 47	9 34	Cm.	+23 50	s.w.byw.½w.		+ 29	+47	+25 06		
	−51 47	9 34	Cm.	+24 04	s.w.byw.½w.		+ 29	+47	+25 20		
	−51 47	9 40	Bn.	+22 50	s.w.byw.½w.		+ 29	+47	+24 06		
	−51 45	9 34	B.	+23 11	s.w. by w.		+ 25	+47	+24 23		
	−51 45	9 34	M.	+20 06	s.w. by w.		+ 25	+47	+21 18		
	−51 45	9 34	Cl.	+20 58	s.w. by w.		+ 25	+47	+22 10		
	−51 49	9 32	Cl.	+22 46	s.w. by w.	−57 39	+ 25	+47	+23 58	+23 46	Card A.
	−51 49	9 32	B.	+21 49	s.w. by w.		+ 25	+47	+23 01		
	−51 50	9 32	B.	+22 53	s.w.byw.½w.		+ 29	+47	+24 09		
	−51 50	9 31	Cl.	+22 18	s.w.byw.½w.		+ 29	+47	+23 34		
	−51 50	9 31	M.	+22 49	s.w.byw.½w.		+ 29	+47	+24 05		
	−51 50	9 31	Cl.	+23 08	s.w.byw.½w.		+ 29	+47	+24 24		
	−51 50	9 31	T.	+22 36	s.w.byw.½w.		+ 29	+47	+23 52		
25 A.M.	−52 45	7 53	M.	+22 21	s.w.byw.½w.		+ 29	+47	+23 37		
	−53 00	7 53	Cm.	+22 50	s w. by w.	−57 14	+ 25	+47	+24 02	+23 46	Card A.
	−53 00	7 53	Cm.	+22 06	s.w. by w.		+ 25	+47	+23 18		
	−53 00	7 53	Cm.	+22 54	s.w. by w.		+ 25	+47	+24 06		
26 A.M.	−53 52	6 16	M.	+19 49	w. ½ n.		+ 36	+52	+21 17		
	−53 52	6 16	B.	+20 18	w. ½ n.		+ 36	+52	+21 46		
	−53 52	6 16	Cl.	+20 56	w. by s.		+ 33	+52	+22 21		
	−53 52	6 16	Cl.	+20 24	w. by s.		+ 33	+52	+21 49		
	−53 52	6 16	Cl.	+20 36	w. by s.		+ 33	+52	+22 01		
	−53 52	6 16	Bn.	+21 28	w. by s.	−57 00	+ 33	+52	+22 53	+21 34	Card J. Compass steady. Index correction +52′ by observations made at the Magnetic Observatory, Cape of Good Hope.
	−53 52	6 16	Cm.	+20 36	w. by s.		+ 33	+52	+22 01		
26 P.M.	−53 55	6 06	B.	+21 08	e. ½ s.		−1 22	+52	+20 38		
	−53 55	6 06	Cl.	+21 38	e. ½ s.		−1 22	+52	+21 08		
	−53 55	6 06	Cl.	+20 54	n.e.		−1 17	+52	+20 29		
	−53 55	6 06	Cl.	+20 53	n.		− 51	+52	+20 54		
	−53 55	6 06	M.	+22 03	e. ½ s.		−1 22	+52	+21 33		
27 P.M.	−55 13	5 57	M.	+19 56	s.w. by s. ½ s.		+ 12	+52	+21 00		
	−55 30	5 54	M.	+21 14	s.s.w. ½ w.	−57 49	+ 10	+52	+22 16	+21 23	Card unsteady.
	−55 45	5 50	M.	+19 48	s.w. by s.		+ 12	+52	+20 52		
29 A.M.	−58 53	4 19	Cl.	+16 07	s.w. ½ s.		+ 19	+52	+17 18		
	−58 53	4 19	B.	+13 45	s.w. by s.		+ 19	+52	+14 56		
29 P.M.	−59 13	4 00	M.	+15 36	s.w. ½ s.	−59 00	+ 19	+52	+16 47	+17 30	Card unsteady.
	−59 13	4 00	Cl.	+19 48	s.w. ½ s.		+ 19	+52	+20 59		
31 A.M.	−60 48	8 18	B.	+22 35	e. ½ s.		−1 47	+52	+21 40		
	−61 03	9 05	Cm.	+20 32	s.e. by s.		− 48	+52	+20 36		
	−61 08	9 05	M.	+19 27	s.e. by s.		− 48	+52	+19 31		
	−61 08	9 05	Cl.	+19 43	s.e. by s.		− 48	+52	+19 47		
31 P.M.	−61 15	9 30	Cl.	+20 31	s.e.	−61 30	−1 01	+52	+20 22	+20 29	Unsteady.
	−61 15	9 30	M.	+21 08	s.e.		−1 01	+52	+20 59		
	−61 20	10 07	M.	+21 16	s.s.e. ½ e.		− 31	+52	+21 37		
	−61 20	10 07	Cl.	+20 28	s.s.e. ½ e.		− 31	+52	+20 49		
	−61 20	10 07	Bn.	+19 23	s.s.e. ½ e.		− 31	+52	+19 44		
	−61 20	10 07	Cl.	+19 21	s.s.e. ½ e.		− 31	+52	+19 42		

Observations of Declination. (Continued.)

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Declination.		Remarks.
1845.	° ′	° ′		° ′		° ′	° ′	′	° ′	° ′	
Feb. 1 A.M.	−61 55	12 26	Cl.	+22 15	s.e. by s.		− 48	+52	+22 19		
1 P.M.	−62 06	12 45	Cm.	+23 40	s.e. by s.	−63 17	− 48	+52	+23 44	+22 07	Very unsteady.
	−62 06	12 55	B.	+22 21	s.e. by s.		− 48	+52	+22 25		
	−62 06	12 55	Cl.	+20 12	s.e.		−1 04	+52	+20 00		
2 A.M.	−61 53	15 57	B.	+22 55	e.n.e.		−2 00	+52	+21 47		
2 P.M.	−61 54	16 34	M.	+25 19	s.e. ½ e.		−1 10	+52	+25 01		
	−61 54	16 38	M.	+26 34	s.e. ½ e.		−1 10	+52	+26 16		
	−61 55	16 40	T.	+23 04	s.e. ½ e.		−1 10	+52	+22 46		
	−61 54	16 42	Cl.	+21 28	s.e. by e.	−63 28	−1 18	+52	+21 02	+23 11	Unsteady.
	−61 54	16 57	Cl.	+21 36	s.e. ½ e.		−1 10	+52	+21 18		
	−61 54	16 57	B.	+20 12	s.e. ½ e.		−1 10	+52	+19 54		
	−61 54	16 57	Bn.	+27 44	s.e. ½ e.		−1 10	+52	+27 26		
3 A.M.	−61 49	19 15	T.	+27 56	e.s.e.		−1 44	+52	+27 04		
	−61 49	19 15	Bn.	+25 32	s.e. by e. ½ e.		−1 36	+52	+24 48		
	−61 50	19 15	Cm.	+27 32	s.e. by e. ½ e.		−1 36	+52	+26 48		
	−61 50	19 06	B.	+27 19	e.s.e.		−1 44	+52	+26 27		
	−61 50	19 12	M.	+27 41	e.s.e.	−64 20	−1 44	+52	+26 49	+26 34	A less delicate point was used for the suspension of the compass-card, which made it much steadier.
	−61 50	19 13	M.	+27 43	e.s.e.		−1 44	+52	+26 51		
	−61 50	19 14	M.	+27 15	e. by s.		−2 03	+52	+26 04		
	−61 50	19 13	Cl.	+27 56	e.s.e.		−1 44	+52	+27 04		
	−61 50	19 13	Cl.	+27 59	e.s.e.		−1 44	+52	+27 07		
	−61 50	19 13	Bn.	+27 32	e.s.e.		−1 44	+52	+26 40		
3 P.M.	−61 50	19 14	M.	+26 52	n.e. by n.		−1 34	+52	+26 10		
	−61 50	19 14	Cl.	+24 05	n.w. ½ w.		+ 21	+52	+25 18		
	−61 50	19 14	Cl.	+23 31	w. by n.		+1 00	+52	+25 23		
	−61 50	19 14	Cl.	+23 24	w. by s.		+1 10	+52	+25 26		
	−61 50	19 14	Cl.	+23 31	w.s.w.		+1 07	+52	+25 30		
	−61 50	19 14	Cl.	+24 37	n.w. by w.		+ 29	+52	+25 58		
	−61 50	19 14	B.	+25 37	n.w.		+ 12	+52	+26 41		
	−61 50	19 14	Cl.	+24 52	n.w.		+ 12	+52	+25 56		
	−61 50	19 14	Cl.	+24 00	w. by n.	−64 20	+1 00	+52	+25 52	+26 16	Card steady. Being a calm the declinations were observed on different points of the compass to obtain the effect of the ship's iron. The compass was afterwards placed in a copper-fastened boat and the declination observed at a distance from the ship.
	−61 50	19 14	M.	+24 06	w.		+1 13	+52	+26 11		
	−61 50	19 14	M.	+23 51	w.		+1 13	+52	+25 56		
	−61 50	19 14	Cl.	+25 46	w.s.w.		+1 07	+52	+27 45		
	−61 50	19 14	Cl.	+23 53	s.w.		+ 48	+52	+25 33		
	−61 50	19 14	Cl.	+28 55	s.s.e.		− 35	+52	+29 12		
	−61 50	19 14	M.	+25 55	s. ½ e.		− 11	+52	+26 36		
	−61 50	19 14	M.	+24 45*	In the boat.		....	+52	+25 37		
	−61 50	19 14	M.	+27 03	s. by e.		− 19	+52	+27 36		
4 A.M.	−62 00	20 55	M.	+25 36	s. ½ e.		− 11	+52	+26 17		
	−62 00	20 55	M.	+26 09	s. ½ e.		− 11	+52	+26 50		
	−62 00	20 37	Cl.	+26 59	s. ½ e.		− 11	+52	+27 40		
4 P.M.	−62 05	20 58	M.	+29 02	s.s.e. ½ e.		− 44	+52	+29 10		
	−62 07	21 04	M.	+27 14	s.s.e.	−64 40	− 35	+52	+27 31	+28 05	Compass steady.
	−62 10	21 03	Cl.	+28 15	s.s.e.		− 35	+52	+28 32		
	−62 10	21 03	Cl.	+28 16	s.s.e.		− 35	+52	+28 33		
	−62 10	21 03	Bn.	+30 14	s.s.e.		− 35	+52	+30 31		
	−62 10	21 03	B.	+27 26	s.s.e.		− 35	+52	+27 43		
5 A.M.	−63 14	21 10	M.	+29 01	s. by e.		− 19	+52	+29 34		
	−63 18	21 10	M.	+28 51	s. by e.		− 19	+52	+29 24		
	−63 18	21 10	Cl.	+27 08	s. ½ e.	−65 35	− 11	+52	+27 49	+28 56	Steady.
	−63 18	21 10	Bn.	+28 47	s. ½ e.		− 11	+52	+29 28		
	−63 18	21 10	T.	+28 08	s. ½ e.		− 11	+52	+28 49		
5 P.M.	−63 19	21 10	M.	+28 14	s.s.e.		− 35	+52	+28 31		

* This observation is not much to be depended on, as the compass was very unsteady and difficult to observe.

Observations of Declination. (Continued.)

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Declination.		Remarks.
1845.	° ′	° ′		° ′		° ′	° ′	′	° ′	° ′	
Feb. 6 A.M.	−64 06	23 17	B.	+28 41	S.S.E.		− 42	+52	+28 51		
	−64 18	24 05	Cl.	+28 29	S.S.E.		− 42	+52	+28 39		
	−64 18	24 05	Cl.	+29 44	S.S.E.		− 42	+52	+29 54		
	−64 20	24 02	M.	+29 57	S.S.E.		− 42	+52	+30 07		
	−64 25	24 10	M.	+28 43	S.S.E. ½ E.	−66 39	− 48	+52	+28 47	+30 24	Card steady.
6 P.M.	−64 35	26 30	Cl.	+31 43	S.E. by S. ½ S.		− 50	+52	+31 45		
	−64 38	26 35	Cl.	+31 22	S.S.E.		− 42	+52	+31 32		
	−64 38	26 35	Bn.	+32 39	S.S.E.		− 42	+52	+32 49		
	−64 25	26 28	M.	+31 06	S.S.E. ½ E.		− 48	+52	+31 10		
7 A.M.	−65 30	28 32	M.	+32 02	S.E. by S.		−1 03	+52	+31 51		
	−65 25	27 45	B.	+32 46	S.S.E.		− 42	+52	+32 56		
	−65 16	27 45	Cl.	+30 41	S.S.E. ½ E.		− 52	+52	+30 41		
	−65 16	27 45	Cl.	+31 16	S.S.E. ½ E.		− 52	+52	+31 16		
	−65 16	27 45	Bn.	+31 51	S.S.E. ½ E.		− 52	+52	+31 51		
7 P.M.	−66 02	29 05	B.	+31 12	S. ½ E.	−67 28	− 18	+52	+31 46	+31 37	Compass steady.
	−66 02	29 05	Cl.	+30 11	S. ½ E.		− 18	+52	+30 45		
	−66 02	29 05	M.	+30 25	S. ½ E.		− 18	+52	+30 59		
	−66 02	29 05	B.	+31 08	S. ½ E.		− 18	+52	+31 42		
	−66 02	29 05	Bn.	+31 00	S. ½ E.		− 18	+52	+31 34		
	−66 02	29 05	Cl.	+31 49	S. ½ E.		− 18	+52	+32 23		
9 P.M.	−66 26	37 25	Cl.	+36 04	S.E. by E.		−1 08	+52	+35 48		
	−66 26	37 25	Bn.	+35 08	S.E. by E.	−68 49	−1 08	+52	+34 52	+35 39	Steady.
	−66 26	37 25	M.	+36 34	S.E. by E.		−1 08	+52	+36 18		
10 A.M.	−66 43	38 32	B.	+37 20	S. by W. ½ W.		+ 32	+52	+38 44		
	−66 43	38 32	Cl.	+35 26	S.S.W.		+ 42	+52	+37 00		
10 P.M.	−67 03	38 32	Bn.	+34 23	S.S.W. ½ W.	−69 22	+ 52	+52	+36 07	+37 43	Steady.
	−67 03	38 32	Cl.	+35 10	S.S.W. ½ W.		+ 52	+52	+36 54		
	−67 03	38 32	Cl.	+39 35	N. by W.		− 36	+52	+39 51		
11 A.M.	−67 34	39 41	Bn.	+40 06	E.		−2 46	+52	+38 12		
	−67 34	39 41	Cl.	+40 11	E. by S.		−2 30	+52	+38 33		
	−67 34	39 41	Cl.	+39 26	E. by S.		−2 30	+52	+37 48		
	−67 34	39 41	Cl.	+36 03	S.W. by S.	−69 38	+1 00	+52	+37 55	+38 13	Card steady.
	−67 34	39 41	Cl.	+37 37	S.		− 02	+52	+38 31		
	−67 34	39 41	Cl.	+38 57	N.N.E.		−1 40	+52	+38 09		
	−67 38	39 41	B.	+37 49	S. ½ E.		− 15	+52	+38 26		
12 A.M.	−66 38	39 23	B.	+37 23	N. by E.		−1 20	+47	+36 50		
	−66 38	39 23	Cl.	+39 04	S.S.E.	−70 16	− 45	+47	+39 06	+37 18	Card A. unsteady.
	−66 47	39 20	M.	+35 56	S.S.E.		− 45	+47	+35 58		
13 A.M.	−67 06	40 03	Cl.	+37 48	N.E. ½ E.		−2 20	+52	+36 20		
	−67 06	40 03	Cl.	+38 57	N.E. by E.		−2 26	+52	+37 23		
	−67 06	40 03	T.	+39 30	N.E. by E.	−69 35	−2 26	+52	+37 56	+36 59	Card J. steady.
	−67 06	40 03	Bn.	+38 03	N.E. by E.		−2 26	+52	+36 29		
	−67 06	40 03	B.	+38 25	N.E. by E. ½ E.		−2 32	+52	+36 45		
14 A.M.	−67 01	40 30	B.	+35 53	N.N.E.	−69 15	−1 35	+52	+35 10	+37 12	Very unsteady.
	−67 01	40 30	Cl.	+40 02	N.N.E. ½ E.		−1 41	+52	+39 13		
16 A.M.	−64 52	38 35	M.	+36 11	S. by E.		− 22	+52	+36 41		
	−64 52	38 35	Cl.	+41 36	N.N.E.		−1 37	+52	+40 51		
16 P.M.	−64 52	38 37	Cl.	+35 44	S.E.	−68 47	−1 28	+52	+35 08	+36 38	Compass unsteady.
	−64 52	38 37	T.	+36 06	E.S.E.		−2 03	+52	+34 55		
	−64 52	38 37	Bn.	+36 31	S.E. by E.		−1 46	+52	+35 37		
17 P.M.	−64 52	40 12	M.	+37 00	S.S.E.		− 44	+52	+37 08		
	−64 52	40 12	Bn.	+35 28	S.S.E.		− 44	+52	+35 36		
	−64 52	40 12	M.	+37 41	S.S.E.		− 44	+52	+37 49	+36 54	Steady.
	−64 52	40 12	Cl.	+38 20	S.S.E.	−68 31	− 44	+52	+38 28		
	−64 52	40 12	Cl.	+37 54	S.E. by S.		−1 06	+52	+37 40		
	−64 52	40 12	T.	+34 54	S.E. by S.		−1 06	+52	+34 40		

Observations of Declination. (Continued.)

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Corrections.		Corrected Declination.		Remarks.
							Ship's attraction.	Index.			
1845.	° ′	° ′		° ′		° ′	° ′	′	° ′	° ′	
Feb. 18 A.M.	−64 22	40 49	Cl.	+38 35	s. by e. ½ e.	−68 40	− 32	+52	+38 55	+36 32	Very unsteady.
	−64 22	40 49	B.	+34 41	n. by e. ½ e.		−1 24	+52	+34 09		
19 P.M.	−63 58	41 25	Cl.	+38 43	s.e. by e. ½ e.	−69 49	−2 04	+52	+37 31	+37 34	Very unsteady.
	−63 58	41 25	Bn.	+38 20	e.s.e.		−2 15	+52	+36 57		
	−63 56	42 00	Bn.	+39 52	e. by s.		−2 30	+52	+38 14		
20 A.M.	−63 24	44 47	B.	+40 08	s.e. by s.	−70 09	−1 08	+52	+39 52	+39 39	Unsteady.
	−63 24	45 32	Cl.	+41 03	s.e. by e. ½ e.		−2 04	+52	+39 51		
	−63 22	45 32	Bn.	+42 12	s.e. by e. ½ e.		−2 04	+52	+41 00		
	−63 22	45 32	Cm.	+39 39	s.e. by e. ½ e.		−2 04	+52	+38 27		
20 P.M.	−63 19	45 52	M.	+39 50	s.e. by e.		−1 54	+52	+38 48		
	−63 19	45 52	Cl.	+40 11	s.e. by s.		−1 08	+52	+39 55		
21 A.M.	−63 34	46 48	M.	+39 46	e. by s. ½ s.	−70 08	−2 28	+52	+38 10	+40 03	Card steady.
	−63 34	46 48	Cl.	+39 00	s.s.e.		− 49	+52	+39 03		
	−63 34	46 48	Cl.	+39 20	s.s.e.		− 49	+52	+39 23		
21 P.M.	−63 40	47 03	M.	+40 22	s.e. ½ s.		−1 01	+52	+40 13		
	−63 41	47 24	B.	+42 45	s.e.		−1 37	+52	+42 00		
	−63 38	46 56	Cl.	+41 11	s.e.		−1 37	+52	+40 26		
	−63 41	47 24	Cl.	+41 50	s.e.		−1 37	+52	+41 05		
22 P.M.	−63 43	49 29	Cl.	+35 00	s.s.w. ½ w.	−70 00	+ 51	+52	+36 43	+39 21	Very unsteady.
	−63 43	49 29	M.	+41 31	s. by e.		− 24	+52	+41 59		
25 A.M.	−61 36	52 56	B.	+41 03	e. ½ n.	−70 48	−2 51	+52	+39 04	+40 30	Card steady.
	−61 36	52 56	Cl.	+41 40	e.		−2 57	+52	+39 35		
	−61 36	52 56	Bn.	+42 45	e.		−2 57	+52	+40 40		
25 P.M.	−61 30	53 43	M.	+40 31	s.e. by e.		−2 00	+52	+39 23		
	−61 30	55 13	Cl.	+43 14	s.e. by s.		−1 13	+52	+42 53		
	−61 28	55 14	M.	+42 30	s.e. ½ e.		−1 56	+52	+41 26		
26 A.M.	−61 19	56 52	B.	+42 44	s.	−71 44	+ 03	+52	+43 39	+41 57	Very unsteady.
	−61 19	57 26	M.	+43 56	s.e. ½ e.		−1 57	+52	+42 51		
	−61 19	57 30	M.	+42 00	s.e. ½ e.		−1 57	+52	+40 55		
	−61 17	57 18	Cl.	+42 11	s.e. ½ e.		−1 57	+52	+41 06		
26 P.M.	−61 17	58 30	Cl.	+43 29	s.e.		−1 46	+52	+42 35		
	−61 17	58 30	M.	+41 42	s.e. ½ e.		−1 57	+52	+40 37		
27 A.M.	−61 02	62 55	B.	+46 08	e.	−72 53	−3 21	+52	+43 39	+45 17	Very unsteady.
	−61 02	62 55	Bn.	+46 02	s.e. ½ s.		−1 40	+52	+45 14		
	−61 02	64 10	M.	+47 17	s.e. ½ s.		−1 40	+52	+46 29		
27 P.M.	−61 10	65 00	Cl.	+45 48	s.s.e.		− 56	+52	+45 44		
28 P.M.	−61 43	69 36	M.	+46 00	s.s.e.	−73 50	−1 01	+52	+45 51	+45 51	Steady.
March 1 A.M.	−62 10	72 24	Cl.	+46 09	s.s.e.	−74 34	−1 02	+52	+45 59	+46 01	Compass steady.
	−62 10	72 24	T.	+46 04	s.s.e.		−1 02	+52	+45 54		
1 P.M.	−62 10	72 25	M.	+46 19	s.s.e. ½ e.		−1 19	+52	+45 52		
	−62 10	72 26	M.	+47 55	s.e. by e.		−2 36	+52	+46 11		
	−62 10	72 26	Cl.	+46 07	s.s.e. ½ e.		−1 19	+52	+45 40		
	−62 10	72 26	Cl.	+46 12	s.s.e. ½ e.		−1 19	+52	+45 45		
	−62 10	72 26	Cl.	+47 31	s.e. by s.		−1 37	+52	+46 46		
2 A.M.	−62 36	75 42	B.	+50 57	s. ½ e.	−74 58	− 10	+52	+51 39	+50 35	Card steady.
	−62 43	76 05	M.	+49 39	s. ½ e.		− 10	+52	+50 21		
	−62 43	76 05	Cl.	+49 31	s. by e.		− 28	+52	+49 55		
	−62 43	76 05	Cl.	+49 10	s.		+ 28	+52	+50 10		
	−62 43	76 05	Cm.	+49 50	s. by e.		− 28	+52	+50 14		
2 P.M.	−62 46	76 50	M.	+49 52	s. ½ e.		− 10	+52	+50 34		
	−62 46	76 50	T.	+48 18	s. ½ e.		− 10	+52	+49 00		
	−62 46	76 50	Cl.	+48 37	s. ¾ e.		− 19	+52	+49 10		
	−62 54	76 59	B.	+50 33	s.		+ 08	+52	+51 33		
	−62 54	76 59	Cl.	+50 17	s.		+ 08	+52	+51 17		
	−62 54	76 59	Bn.	+51 31	s.		+ 08	+52	+52 31		

Observations of Declination. (Continued.)

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Declination.		Remarks.
1845.	° ′	° ′		° ′		° ′	° ′	′	° ′	° ′	
March 4 A.M.	−63 05	80 20	Cl.	+55 33	E. ½ N.	−76 20	−4 08	+52	+52 17	+52 17	Very unsteady.
5 A.M.	−61 41	84 50	M.	+50 48	S.E. ½ S.		−2 27	+52	+49 13		
	−61 42	84 50	B.	+49 37	S.E.		−2 36	+52	+47 53		
	−61 41	84 50	Cl.	+52 14	S.E.		−2 36	+52	+50 30		
	−61 41	84 50	T.	+49 55	S.E.	−76 43	−2 36	+52	+48 11	+47 19	Unsteady.
5 P.M.	−61 41	85 59	Cl.	+47 11	S.E. ½ S.		−2 27	+52	+45 36		
	−61 41	85 59	B.	+46 36	S.E. ½ S.		−2 27	+52	+45 01		
	−61 41	85 59	M.	+46 24	S.E. ½ S.		−2 27	+52	+44 49		
6 A.M.	−60 51	87 20	B.	+52 54	N.E.		−3 38	+52	+50 08		
	−60 51	87 20	Bn.	+49 16	E.	−77 04	−4 32	+52	+45 36	+47 47	Compass unsteady.
	−60 48	88 23	Cl.	+49 25	S.E.		−2 40	+52	+47 37		
7 A.M.	−61 10	90 26	B.	+50 52	S.S.E.		−1 20	+52	+50 24		
	−61 20	91 00	M.	+50 04	S. by E.		— 30	+52	+50 26		
	−61 20	91 00	Cl.	+47 29	S. ¼ W.		+ 34	+52	+48 55		
	−61 20	91 00	Cl.	+46 47	S. ½ E.		— 20	+52	+47 19		
	−61 20	91 00	T.	+48 53	S.	−77 38	+ 15	+52	+50 00	+49 28	Unsteady.
7 P.M.	−61 28	91 58	Cl.	+45 22	S.W. by S.		+2 13	+52	+48 27		
	−61 28	91 58	Cl.	+46 48	S.W. by S.		+2 13	+52	+49 53		
	−61 28	91 58	Bn.	+46 32	S.W. by S. ½ S.		+2 00	+52	+49 24		
	−61 28	91 58	M.	+46 19	S.S.W.		+1 38	+52	+48 49		
	−61 30	92 00	B.	+48 30	S.S.W.		+1 38	+52	+51 00		Amplitude.
8 A.M.	−61 27	91 32	Bn.	+53 20	E.S.E.		−4 11	+52	+50 01		
	−61 27	91 32	B.	+52 57	E.S.E ¼ E.		−4 15	+52	+49 34		
	−61 27	91 32	Bn.	+51 53	E.S.E.		−4 11	+52	+48 34		
	−61 15	92 00	Cl.	+53 18	E. by N.	−77 57	−4 20	+52	+49 50	+49 02	Card steady.
8 P.M.	−61 03	91 49	B.	+52 26	E.		−4 46	+52	+48 32		
	−61 03	91 49	B.	+51 01	E.N.E.		−4 34	+52	+47 19		
	−61 03	91 49	T.	+52 54	E. by S.		−4 23	+52	+49 23		
9 A.M.	−60 58	92 02	B.	+48 53	E.N.E.		−4 34	+52	+45 11		
	−60 58	92 02	Bn.	+52 21	N.E. by E.		−4 10	+52	+49 03		
	−60 58	92 04	Bn.	+52 42	E.N.E.		−4 34	+52	+49 00		
	−60 50	92 10	B.	+52 59	E.N.E.	−77 32	−4 34	+52	+49 17	+48 01	Compass unsteady.
	−60 30	92 27	M.	+51 50	E.		−4 46	+52	+47 56		
9 P.M.	−60 22	93 17	B.	+51 00	E.S.E.		−4 11	+52	+47 41		
10 A.M.	−60 03	94 00	Bn.	+48 09	E. by S. ½ S.		−4 20	+52	+44 41		
	−60 03	94 01	B.	+46 11	E. by S.	−77 37	−4 23	+52	+42 40		
10 P.M.	−60 03	96 30	M.	+48 10	S.E.		−2 49	+52	+46 13	+44 53	Unsteady.
	−60 03	96 30	Cl.	+47 54	S.E.		−2 49	+52	+45 57		
11 A.M.	−60 01	99 10	B.	+38 42	S.E. by S.		−2 26	+52	+37 08		
11 P.M.	−59 31	100 45	Cl.	+44 46	N.E. ½ E.		−4 54	+52	+40 44		
	−59 31	100 45	M.	+43 03	N. ½ E.		−1 46	+52	+42 09		
	−59 31	100 45	Cl.	+44 20	N. ½ E.	−79 31	−1 46	+52	+43 26	+41 02	Very unsteady.
	−59 31	100 45	T.	+41 02	N. ½ E.		−1 46	+52	+40 08		
	−59 31	100 45	B.	+40 27	N. ½ E.		−1 46	+52	+39 33		
	−59 31	100 45	Cl.	+45 55	N. by E. ½ E.		−2 38	+52	+44 09		
12 A.M.	−58 31	98 59	Cl.	+42 31	N.E. by N.	−78 50	−3 33	+52	+39 50	+39 50	Very unsteady.
13 A.M.	−58 30	98 32	B.	+46 56	N.E. by E. ½ E.		−4 58	+52	+42 50		
	−58 30	98 32	Cl.	+42 58	E.N.E.	−78 10	−4 58	+52	+38 52	+40 37	Very unsteady.
13 P.M.	−58 30	98 32	Cl.	+43 51	E. ½ S.		−4 33	+52	+40 10		
14 A.M.	−56 56	101 10	M.	+40 48	E.S.E.	−78 26	−4 02	+52	+37 38	+37 37	Very unsteady.
	−56 50	101 20	Cl.	+40 46	E.S.E.		−4 02	+52	+37 36		
15 A.M.	−55 50	103 08	Cl.	+36 52	E. by N.		−5 01	+52	+32 43		
15 P.M.	−55 40	103 18	M.	+35 37	E. ½ S.	−78 33	−4 33	+52	+31 56	+32 54	Very unsteady.
	−55 35	103 20	Cl.	+37 56	E. by S.		−4 46	+52	+34 02		

Observations of Declination. (Continued.)

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Declination.		Remarks.
1845.	° ′	° ′		° ′		° ′	° ′	′	° ′	° ′	
Mar. 16 A.M.	−55 15	106 03	B.	+30 31	N.E.		−3 47	+52	+27 36		
16 P.M.	−54 42	106 08	Cl.	+32 16	N.E. ½ E.		−3 56	+52	+29 12		
	−54 42	106 08	T.	+32 06	N.E. ½ E.	−78 41	−3 56	+52	+29 02	+29 24	Very unsteady.
	−54 38	106 28	M.	+33 16	E.		−4 46	+52	+29 22		
	−54 38	106 28	Cl.	+34 13	E.		−4 46	+52	+30 19		
	−54 36	106 28	Bn.	+34 45	E.		−4 46	+52	+30 51		
17 A.M.	−54 05	108 15	Cl.	+29 19	E. by S.	−79 04	−4 52	+52	+25 19	+26 34	Very unsteady.
	−54 05	108 15	M.	+32 02	E. ½ S.		−5 05	+52	+27 49		
18 A.M.	−53 30	110 13	Bn.	+25 18	N.N.E.		−2 37	+52	+23 33		
	−53 14	110 24	M.	+22 05	N.N.E. ½ E.		−2 58	+52	+19 59		
	−53 10	110 27	M.	+26 50	N.E. ½ E.	−77 34	−4 01	+52	+23 41	+21 52	Very unsteady.
	−53 08	110 29	M.	+26 25	N.E.		−3 47	+52	+23 30		
	−53 08	110 29	Cl.	+23 34	N.E. ½ E.		−4 01	+52	+20 25		
18 P.M.	−53 03	110 20	T.	+20 00	N. ½ W.		— 48	+52	+20 04		
19 P.M.	−52 38	110 30	Cl.	+18 23	N.N.E.	−77 09	−2 32	+52	+16 43	+16 43	Very unsteady.
20 A.M.	−49 22	112 34	Bn.	+23 05	N.E. by N.		−2 49	+52	+21 08		
	−49 22	112 34	Bn.	+21 06	N. by E. ½ E.		−2 04	+52	+19 54		
	−49 22	112 34	Bn.	+20 05	N.N.E.		−2 19	+52	+18 38		
	−49 01	112 50	M.	+19 26	N.E.		−3 25	+52	+16 53		
20 P.M.	−49 00	112 51	Cl.	+17 58	N.E. ½ N.	−76 17	−3 10	+52	+15 40	+17 09	Compass unsteady.
	−49 00	112 51	Cl.	+18 30	N.E. ½ N.		−3 10	+52	+16 12		
	−48 59	112 53	T.	+21 50	N.E. ½ E.		−3 35	+52	+19 07		
	−48 54	112 55	T.	+17 12	N.E. ½ E.		−3 35	+52	+14 29		
	−48 56	112 56	M.	+17 24	N.E. ½ E.		−3 35	+52	+14 41		
	−48 56	112 56	M.	+17 33	N.E. ½ E.		−3 35	+52	+14 50		
23 P.M.	−46 32	115 54	M.	+11 55	N. ½ W.	−74 30	— 45	+52	+12 02	+12 02	Steady.
24 P.M.	−45 04	116 52	T.	+ 8 52	N. ½ W.	−73 27	— 45	+52	+ 8 59	+ 9 43	Very unsteady.
	−44 54	116 55	M.	+10 38	N.		−1 03	+52	+10 27		
25 A.M.	−43 53	116 52	M.	+ 7 12	N. by W. ½ W.		— 30	+52	+ 7 34		
	−43 52	116 59	B.	+ 5 40	N. by W.		— 42	+52	+ 5 50		
	−43 52	116 59	Bn.	+ 8 18	N. ½ W.	−72 28	— 54	+52	+ 8 16	+ 7 04	Card unsteady.
	−43 42	116 59	Cl.	+ 7 42	N.		−1 00	+52	+ 7 34		
	−43 42	116 59	T.	+ 5 59	N.		−1 00	+52	+ 5 51		
25 P.M.	−43 08	116 55	Cl.	+ 7 45	N. ½ E.		−1 12	+52	+ 7 25		
26 A.M.	−41 29	116 42	M.	+ 3 45	N. by W.		— 33	+52	+ 4 04		
26 P.M.	−40 54	116 42	Cl.	+ 4 48	N. by W.	−70 43	— 33	+52	+ 5 07	+ 4 10	Card unsteady.
	−40 42	116 42	M.	+ 3 10	N. by W.		— 33	+52	+ 3 29		
27 A.M.	−39 00	116 15	M.	+ 7 09	N. by W.		— 33	+52	+ 7 28		
	−39 00	116 15	Cl.	+ 6 26	N. by W.	−68 27	— 33	+52	+ 6 45	+ 6 56	Compass steady.
27 P.M.	−38 32	116 17	M.	+ 7 48	N. by E.		−1 20	+52	+ 7 20		
	−38 08	116 19	M.	+ 6 37	N. by E.		−1 20	+52	+ 6 09		
28 P.M.	−37 02	116 38	M.	+ 4 10	N. by E. ½ E.		−1 11	+52	+ 3 51		
	−36 46	116 35	M.	+ 5 45	N.N.E.	−66 38	−1 26	+52	+ 5 11	+ 4 31	Steady.
	−36 46	116 35	Cl.	+ 5 13	N.N.E. ½ E.		−1 33	+52	+ 4 32		
29 A.M.	−36 13	116 40	M.	+ 4 49	N. by E.		−1 07	+52	+ 4 34		
	−36 12	116 40	M.	+ 5 56	N. by E.		−1 07	+52	+ 5 41		
	−36 13	116 40	Cl.	+ 4 29	N. by E.		−1 07	+52	+ 4 14		
	−36 12	116 40	T.	+ 4 52	N. by E.	−65 44	−1 07	+52	+ 4 37	+ 4 52	Steady.
	−36 11	116 40	M.	+ 5 38	N.		— 53	+52	+ 5 37		
29 P.M.	−36 10	116 47	Bn.	+ 4 37	N.E. ½ E.		−1 56	+52	+ 3 33		
	−36 10	116 47	Cl.	+ 6 01	N.E. ½ E.		−1 56	+52	+ 4 57		
	−36 08	116 54	M.	+ 6 48	N.E. ½ E.		−1 56	+52	+ 5 44		
30 A.M.	−35 09	117 41	Cl.	+ 7 10	S.E. ½ E.		−1 34	+52	+ 6 28		
	−35 09	117 41	Cl.	+ 6 54	N. ½ E.		— 59	+52	+ 6 47		
	−35 14	117 41	Cl.	+ 4 52	S. ½ E.	−65 36	— 13	+52	+ 5 31	+ 6 20	Compass steady.
	−35 14	117 41	Bn.	+ 5 05	S. ½ E.		— 13	+52	+ 5 44		
30 P.M.	−35 14	117 41	M.	+ 6 23	S.		— 03	+52	+ 7 12		

Observations of Declination. (Continued.)

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Declination.		Remarks.
1845.											
Mar. 31 A.M.	−35° 28′	117° 04′	Cl.	+7° 59′	N.E. ½ E.	−65° 20′	−1° 56′	+52′	+6° 55′	+6° 55′	Unsteady.
April 1 A.M.	−35 08	117 50	Cl.	+9 57	N.N.E.	−65 00	−1 22	+52	+9 27	+9 27	Unsteady.
11 A.M.	−35 02	117 56	M.	+4 17	Observed on shore.			+52	+5 09		Card J.
14 A.M.	King George's		Cl.	+4 53				+52	+5 45	+5 33	Card J.
	Sound, Australia		Cl.	+4 58				+47	+5 45		Card A.
21 A.M.	−35 10	118 06	M.	+3 48	W. by S.	−65 11	+1 17	+52	+5 57	+5 57	Card J. unsteady.
22 A.M.	−35 42	115 40	M.	+5 10	S.	−65 11	− 03	+52	+5 59	+5 59	Unsteady.
23 A.M.	−35 40	114 55	Cl.	+3 05	N.W.		+ 21	+52	+4 18		
	−35 38	114 50	M.	+4 33	N.N.W. ½ W.	−65 11	− 09	+52	+5 16	+5 41	Unsteady.
23 P.M.	−35 23	114 21	M.	+6 29	N.W. ½ N.		+ 09	+52	+7 30		
24 A.M.	−34 24	113 17	M.	+6 31	N.W. by N.		− 04	+52	+7 19		
	−34 20	113 15	Cl.	+6 10	N.W. by N.		− 04	+52	+6 58		
	−34 17	113 12	Cl.	+5 34	N.W. by N.	−64 44	− 04	+52	+6 22	+6 37	Card unsteady.
Noon.	−34 12	113 05	M.	+5 00	N.W. by N.		− 04	+52	+5 48		
25 A.M.	−32 48	111 44	M.	+6 55	N.W. by N.		− 08	+52	+7 39		
	−32 48	111 45	Cm.	+6 04	N.W. by N.	−62 18	− 08	+52	+6 48		
	−32 40	111 44	Cl.	+5 20	N.W. ½ N.		− 06	+52	+6 06	+6 36	Steady.
	−32 38	111 43	Cl.	+5 05	N.W. ½ N.		− 06	+52	+5 51		
	−32 35	111 40	Cl.	+5 53	N.W. by N.		− 08	+52	+6 37		
26 A.M.	−30 31	109 15	Cl.	+5 58	N.W. by N.		− 12	+52	+6 38		
	−30 31	109 15	Bn.	+6 25	N.W. by N.	−60 30	− 12	+52	+7 05	+7 20	Unsteady.
26 P.M.	−30 26	108 58	M.	+5 58	N.W.		+ 02	+52	+6 52		
	−30 15	108 58	Cm.	+7 52	N.W.		+ 02	+52	+8 46		
27 A.M.	−29 20	106 55	M.	+6 04	N.W. ½ W.	−59 25	+ 10	+52	+7 06	+6 30	Steady.
	−29 20	106 55	Cm.	+5 00	N.W.		+ 02	+52	+5 54		
28 A.M.	−27 57	106 36	M.	+8 27	N.	−57 22	− 50	+52	+8 29	+6 33	Very unsteady.
28 P.M.	−27 25	106 34	Cl.	+4 26	N. by W.		− 40	+52	+4 38		
29 A.M.	−26 10	105 16	M.	+3 56	N.W.		− 07	+52	+4 41		
	−26 10	105 16	Cl.	+5 52	N.W.	−55 07	− 07	+52	+6 37	+5 30	Very unsteady.
	−26 10	105 16	Bn.	+5 28	N.W.		− 07	+52	+6 13		
30 A.M.	−24 10	102 30	Cl.	+3 58	W.N.W.	−54 30	+ 20	+52	+5 10	+5 32	Very unsteady.
	−24 05	102 26	M.	+4 42	W.N.W.		+ 20	+52	+5 54		
May 1 A.M.	−23 58	99 26	Cl.	+3 02	W.		+ 38	+52	+4 32		
	−23 58	99 25	Cl.	+3 00	W.		+ 38	+52	+4 30		
	−23 58	99 22	M.	+4 25	W.	−54 07	+ 38	+52	+5 55	+5 14	Unsteady.
Noon.	−23 58	99 13	M.	+4 30	W.		+ 38	+52	+6 00		
2 A.M.	−24 01	97 34	M.	+7 57	N. by E. ½ E.		− 58	+52	+7 51		
	−24 01	97 34	M.	+7 50	N.N.E.	−54 11	−1 00	+52	+7 42	+7 08	Compass steady.
	−24 01	97 34	Bn.	+6 26	N. by E. ½ E.		− 58	+52	+6 20		
	−24 01	97 34	Cl.	+6 47	N.N.E.		−1 00	+52	+6 39		
3 A.M.	−23 55	95 58	M.	+5 58	W. ½ N.		+ 40	+52	+7 30		
	−23 55	95 58	M.	+4 58	W. ½ N.		+ 40	+52	+6 30		
	−23 55	95 58	Cl.	+3 40	W. ½ N.		+ 40	+52	+5 12		
3 P.M.	−24 00	95 25	M.	+4 41	W. ½ S.	−54 21	+ 33	+52	+6 06	+6 10	Steady.
	−24 00	95 25	Cl.	+4 05	W. ½ S.		+ 33	+52	+5 30		
	−23 55	95 50	Cm.	+4 42	W. ½ S.		+ 40	+52	+6 14		
4 A.M.	−24 17	94 08	Cl.	+5 09	W.N.W.		+ 12	+52	+6 13		
	−24 17	94 10	M.	+4 22	W.N.W.		+ 12	+52	+5 26		Card J. steady.
	−24 17	94 10	M.	+3 51	W.N.W.	−54 07	+ 12	+47	+4 50	+5 31	Card A. steady.
Noon.	−24 17	93 58	M.	+4 30	W.N.W.		+ 12	+52	+5 34		Card J. steady.
5 A.M.	−24 05	92 11	Cl.	+6 05	N.W. by N.	52 44	− 23	+52	+6 34	+6 34	Steady.
6 A.M.	−22 54	90 50	M.	+4 38	N.W.		− 13	+52	+5 17		
	−22 54	90 50	Bn.	+4 57	N.W.		− 13	+52	+5 36		
	−22 54	90 50	Cl.	+4 49	N.W.		− 13	+52	+5 28		
	−22 50	90 48	Cl.	+5 04	N.W.		− 13	+52	+5 43		
6 P.M.	−22 39	90 35	M.	+5 59	N.W. by N.	−52 49	− 23	+52	+6 28	+5 56	Compass steady.

Observations of Declination. (Continued.)

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Declination.		Remarks.
1845. May 6 P.M.	−22° 39′	90° 32′	M.	+6° 12′	N.N.W.	−52° 49′	− ° 34′	+52′	+6° 30′	+5° 56′	Compass steady.
	−22 39	90 32	Bn.	+4 40	N.W. by N.		− 23	+52	+5 09		
	−22 39	90 32	Cl.	+5 53	N.W. by N.		− 23	+52	+6 22		
Sunset.	−22 39	90 32	Cl.	+6 33	N.N.W.		− 34	+52	+6 51		
7 A.M.	−21 53	89 42	M.	+3 30	N.W.	−52 01	− 18	+52	+4 04	+4 23	Unsteady.
	−21 53	89 42	Cl.	+4 09	N.W.		− 18	+52	+4 43		
8 A.M.	−20 48	88 08	M.	+3 42	N.W. by W.		− 10	+52	+4 24		
	−20 47	88 05	M.	+3 53	N.W. by W.		− 10	+52	+4 35		
	−20 45	88 05	Cl.	+3 25	N.W. by W.	−51 15	− 10	+52	+4 07	+4 45	Card steady.
	−20 45	88 05	Bn.	+4 11	N.W. by W.		− 10	+52	+4 53		
Noon.	−20 38	87 56	M.	+4 30	W. ½ N.		+ 26	+52	+5 48		
9 A.M.	−20 37	85 39	M.	+4 38	W. ½ N.		+ 26	+52	+5 56		
	−20 37	85 39	Cl.	+3 28	W. ½ N.	−51 18	+ 26	+52	+4 46	+5 20	Steady.
Noon	−20 37	85 19	M.	+4 00	W. ½ N.		+ 26	+52	+5 18		
10 A.M.	−20 25	82 45	M.	+4 12	W. ½ N.		+ 26	+52	+5 30		
	−20 25	82 24	M.	+4 17	W. ½ N.		+ 26	+52	+5 35		
	−20 25	82 30	Bn.	+3 06	W. ½ N.	−51 22	+ 26	+52	+4 24	+5 08	Very unsteady.
	−20 25	82 30	Cl.	+3 26	W. ½ N.		+ 26	+52	+4 44		
	−20 25	82 30	T.	+4 08	W. ½ N.		+ 26	+52	+5 26		
11 A.M.	−20 36	79 36	M.	+2 56	W. ¼ N.		+ 24	+52	+4 12		
	−20 36	79 34	M.	+2 31	W. ¼ N.		+ 24	+52	+3 47		
	−20 36	79 34	Bn.	+2 27	W. ¼ N.		+ 24	+52	+3 43		
	−20 36	79 34	Cl.	+3 12	W. ¼ N.	−51 48	+ 24	+52	+4 28	+4 43	Compass unsteady.
11 P.M.	−20 36	79 00	M.	+4 48	W. ¼ N.		+ 24	+52	+6 04		
	−20 36	79 00	Cl.	+4 34	W. ¼ N.		+ 24	+52	+5 50		
	−20 36	79 00	T.	+3 43	W. ¼ N.		+ 24	+52	+4 59		
12 A.M.	−20 44	78 34	M.	+5 38	N.		− 50	+52	+5 40		
	−20 44	78 34	Cl.	+6 28	N.		− 50	+52	+6 30		
	−20 44	78 34	M.	+5 06	N.N.W.		− 38	+52	+5 20		
	−20 44	78 34	Cl.	+6 32	N.N.W.		− 38	+52	+6 46		
	−20 44	78 34	M.	+5 27	N.W.		− 22	+52	+5 57		
	−20 44	78 34	Cl.	+5 12	N.W.		− 22	+52	+5 42		
	−20 44	78 34	M.	+3 23	W.N.W.		+ 04	+52	+4 19		
	−20 44	78 34	Cl.	+5 36	W.N.W.		+ 04	+52	+6 32		
	−20 44	78 34	M.	+2 23	W.		+ 20	+52	+3 35		
	−20 44	78 34	Cl.	+4 09	W.		+ 20	+52	+5 21		
	−20 44	78 34	M.	+2 58	W.S.W.	−52 02	+ 15	+52	+4 05	+5 29	To obtain corrections for the ship's attraction.
	−20 44	78 34	Cl.	+4 22	W.S.W.		+ 15	+52	+5 29		
	−20 44	78 34	M.	+4 20	S.W.		+ 06	+52	+5 18		A calm, heavy swell, compass unsteady.
	−20 44	78 34	Cl.	+4 26	S.W.		+ 06	+52	+5 24		
	−20 44	78 34	M.	+4 46	S.S.W.		− 01	+52	+5 37		
	−20 44	78 34	Cl.	+4 48	S.S.W.		− 01	+52	+5 39		
	−20 44	78 34	M.	+4 42	S.		− 08	+52	+5 26		
	−20 44	78 34	Cl.	+4 29	S.		− 08	+52	+5 13		
	−20 44	78 34	M.	+5 41	E.N.E.		−1 13	+52	+5 20		
	−20 44	78 34	Cl.	+6 00	E.N.E.		−1 13	+52	+5 39		
	−20 44	78 34	M.	+6 21	N.N.E.		− 57	+52	+6 16		
13 A.M.	−20 39	77 45	Cl.	+4 11	W.		+ 20	+52	+5 23		
	−20 39	77 45	T.	+4 29	W.	−51 59	+ 20	+52	+5 41	+5 22	Steady.
	−20 39	77 45	M.	+3 49	W.		+ 20	+52	+5 01		
14 A.M.	−20 28	76 23	M.	+4 43	W. ½ N.		+ 16	+52	+5 51		
	−20 28	76 23	Bn.	+4 25	W. ½ N.	−52 20	+ 16	+52	+5 33	+6 01	Very unsteady.
	−20 28	76 23	Cl.	+5 31	W. ½ N.		+ 16	+52	+6 39		
15 A.M.	−20 45	73 20	M.	+4 46	W. ½ N.	−52 25	+ 16	+52	+5 54	+5 54	Unsteady.
16 A.M.	−20 27	70 49	M.	+6 12	W. ½ N.	−52 35	+ 16	+52	+7 20	+6 35	Card unsteady.
	−20 27	70 49	Cl.	+4 43	W. ½ N.		+ 16	+52	+5 51		

Observations of Declination. (Continued.)

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Declination.	Corrected Declination. (mean)	Remarks.
1845.	° ′	° ′		° ′		° ′	′	′	° ′	° ′	
May 17 A.M.	−20 34	69 40	Cl.	+ 5 06	W.	−53 01	+20	+52	+ 6 18	+ 6 07	Card unsteady.
	−20 34	69 35	Cl.	+ 4 45	W.		+20	+52	+ 5 57		
18 A.M.	−21 06	68 30	Cl.	+ 6 28	W. ¼ S.	−53 06	+20	+52	+ 7 40	+ 8 00	Compass steady.
	−21 00	68 22	M.	+ 6 24	W. by S.		+18	+52	+ 7 34		
P.M.	−20 52	68 04	M.	+ 7 35	N.N.W.		−37	+52	+ 7 50		
	−20 52	68 04	Bn.	+ 8 59	N.N.W.		−37	+52	+ 9 14		
Sunset.	−21 00	68 00	M.	+ 7 45	N. by W. ½ W.		−47	+52	+ 7 40		
19 A.M.	−21 11	67 54	M.	+ 6 40	N.W.	−53 24	−19	+52	+ 7 13	+ 6 34	Card steady.
	−21 11	67 54	Cl.	+ 6 21	N.W. ½ N.		−23	+52	+ 6 50		
	−21 11	67 54	T.	+ 5 11	N.W. ½ N.		−23	+52	+ 5 40		
20 A.M.	−21 12	67 29	Cl.	+ 6 24	W. by N.	−53 49	+15	+52	+ 7 31	+ 7 37	Steady.
	−21 12	67 29	Bn.	+ 6 36	W. by N.		+15	+52	+ 7 43		
21 A.M.	−21 01	66 26	Cl.	+ 6 53	W. by N.	−53 56	+15	+52	+ 8 00	+ 7 46	
	−21 01	66 26	Bn.	+ 6 34	W. by N.		+15	+52	+ 7 41		
	−21 01	66 20	M.	+ 6 30	W. by N.		+15	+52	+ 7 37		
22 A.M.	−20 41	63 16	M.	+ 7 17	W. by N.	−53 53	+15	+52	+ 8 24	+ 8 27	
Sunset.	−20 38	62 44	M.	+ 7 23	W. by N.		+15	+52	+ 8 30		
23 A.M.	−20 30	59 42	Cl.	+ 8 40	W. by N.	−54 09	+15	+52	+ 9 47	+ 9 44	
	−20 30	59 42	Bn.	+ 8 12	W. by N.		+15	+52	+ 9 19		
	−20 30	59 42	M.	+ 9 00	W. by N.		+15	+52	+10 07		
24 A.M.	−19 54	57 55	M.	+ 8 15	W. ½ N.	−53 56	+20	+52	+ 9 27	+ 9 27	Very unsteady.
27 A.M.	−20 09	57 31	M.	+ 8 31	On shore.			+52	+ 9 23	+ 9 44	Port Louis, Mauritius.
	−20 09	57 31	M.	+ 9 13				+52	+10 05		
29 A.M.	−20 50	55 31	Cl.	+ 9 13	W.	−54 00	+26	+52	+10 31	+11 15	Card steady.
	−20 50	55 33	M.	+10 47	W. ½ N.		+20	+52	+11 59		
30 A.M.	−21 30	53 10	M.	+12 09	S.W. by W. ½ W.	−54 45	+19	+52	+13 20	+13 44	
P.M.	−22 02	52 58	Cl.	+12 44	S.W. by W.		+16	+52	+13 52		
	−22 02	52 58	B.	+12 34	S.W. by W.		+16	+52	+13 42		
	−22 02	52 58	M.	+12 54	S.W. by W.		+16	+52	+14 02		
31 P.M.	−23 44	51 48	Cl.	+12 17	S.W. by W. ½ W.	−56 02	+19	+52	+13 28	+14 22	Card unsteady.
	−23 44	51 48	Cl.	+13 48	S.W. by W. ½ W.		+19	+52	+14 59		
	−23 44	51 48	M.	+13 28	S.W. by W. ½ W.		+19	+52	+14 39		
June 1 A.M.	−25 47	49 40	Cl.	+14 16	W.S.W.	−57 19	+27	+52	+15 35	+15 09	Unsteady.
	−25 47	49 40	M.	+13 24	W.S.W.		+27	+52	+14 43		
2 A.M.	−26 30	49 20	M.	+15 38	N.W.	−58 36	−01	+52	+16 29	+16 23	
	−26 30	49 20	Cl.	+15 25	N.W.		−01	+52	+16 16		
	−26 30	49 20	T.	+15 32	N.W.		−01	+52	+16 23		
4 A.M.	−27 10	46 09	Cl.	+19 50	W. by S.	−58 38	+48	+52	+21 30	+20 25	Very unsteady.
	−27 10	46 09	Cl.	+19 01	W. by S.		+48	+52	+20 41		
	−27 07	46 14	M.	+17 56	W. by S.		+48	+52	+19 36		
4 P.M.	−27 14	45 59	M.	+19 18	W. by S.		+48	+52	+20 58		
Sunset.	−27 18	45 39	Cl.	+17 38	W.		+51	+52	+19 21		
5 A.M.	−28 19	43 11	Cl.	+19 40	W.	−58 31	+31	+52	+21 03	+21 19	Card very unsteady.
	−28 19	43 11	M.	+21 14	W.		+31	+52	+22 37		
	−28 20	43 00	Cl.	+18 55	W.		+31	+52	+20 18		
6 A.M.	−28 50	42 07	M.	+19 58	N.W. by W.	−59 01	+12	+52	+21 02	+21 57	Very unsteady.
	−28 49	42 10	M.	+19 47	N.W. by W.		+12	+52	+20 51		
	−28 49	42 11	Cl.	+21 48	N.W. by W.		+12	+52	+22 52		
	−28 46	42 00	M.	+22 00	N.W. by W.		+12	+52	+23 04		
7 A.M.	−28 32	40 32	M.	+21 48	W. by N.	−58 54	+22	+52	+23 02	+22 34	Unsteady.
	−28 38	40 20	M.	+21 29	W. by N.		+22	+52	+22 43		
	−28 32	40 32	Cl.	+21 04	W. by N.		+22	+52	+22 18		
7 P.M.	−28 40	39 52	M.	+21 17	W. by N.		+22	+52	+22 31		
	−28 40	39 52	Cl.	+21 04	W. by N.		+22	+52	+22 18		

Observations of Declination. (Continued.)

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Declination.		Remarks.
1845.	° ′	° ′		° ′		° ′	° ′	′	° ′	° ′	
June 8 A.M.	−28 50	37 58	M.	+21 41	W.		+ 32	+52	+23 05		
	−28 53	37 55	M.	+22 17	W.		+ 32	+52	+23 41		
	−28 56	37 56	CL.	+21 49	W. ½ S.		+ 31	+52	+23 12		
	−28 56	37 56	T.	+22 00	W. ½ S.	−59 11	+ 27	+52	+23 19	+23 37	
	−28 58	37 49	M.	+21 44	W.		+ 32	+52	+23 08		
8 P.M.	−29 03	37 37	M.	+23 19	W. ½ S.		+ 31	+52	+24 42		
Sunset.	−29 03	37 37	CL.	+22 48	W. ½ S.		+ 31	+52	+24 11		
9 A.M.	−30 20	36 04	M.	+25 36	W. ½ S.	−57 59	+ 30	+52	+26 58	+26 29	Very unsteady.
	−30 16	35 46	CL.	+24 38	W. ½ S.		+ 30	+52	+26 00		
11 A.M.	−30 30	33 45	M.	+26 28	N.W. by W.		− 07	+52	+27 13		
11 P.M.	−30 27	33 41	CL.	+24 42	W. ½ N.		+ 24	+52	+25 58		
	−30 30	33 41	M.	+27 05	S.E.		− 40	+52	+27 17		
	−30 30	33 41	M.	+26 59	N.E.	−56 37	−1 10	+52	+26 41	+27 28	Very unsteady.
	−30 30	33 41	BN.	+27 43	S.E.		− 40	+52	+27 55		
	−30 30	33 41	CL.	+29 36	S.E. ½ E.		− 46	+52	+29 42		
12 A.M.	−30 35	33 13	M.	+23 58	W. by N.	−57 19	+ 19	+52	+25 09	+25 09	Very unsteady.
13 A.M.	−31 05	31 39	M.	+25 15	W. by S. ½ S.		+ 25	+52	+26 32		
	−31 05	31 34	M.	+25 22	W. by S. ½ S.		+ 25	+52	+26 39		
	−31 06	31 30	M.	+25 13	W. by S. ½ S.		+ 25	+52	+26 30		
	−31 10	31 28	M.	+25 25	W. by S. ½ S.		+ 25	+52	+26 42		
	−31 05	31 39	BN.	+27 16	W. by S.	−57 26	+ 26	+52	+28 34	+26 46	Card steady.
	−31 05	31 34	CL.	+25 46	W. by S. ½ S.		+ 25	+52	+27 03		
13 P.M.	−31 12	31 28	CL.	+24 39	S.W. by W. ½ W.		+ 21	+52	+25 52		
	−31 18	31 23	M.	+25 06	S.W. by W. ½ W.		+ 21	+52	+26 19		
	−31 18	31 23	CL.	+25 26	S.W. by W. ½ W.		+ 21	+52	+26 39		
14 A.M.	−32 50	29 51	M.	+28 06	S.W. by W. ½ W.		+ 22	+52	+29 20		
	−32 53	29 45	CL.	+27 02	W. ½ S.	−57 34	+ 30	+52	+28 24	+28 44	Card unsteady.
	−32 53	29 45	T.	+27 19	W. ½ S.		+ 30	+52	+28 41		
	−33 00	29 55	CL.	+27 09	W.		+ 31	+52	+28 32		
15 A.M.	−34 36	27 14	M.	+27 06	W. ½ S.		+ 30	+52	+28 28		
	−34 36	27 12	T.	+26 23	W. ½ S.		+ 30	+52	+27 45		
	−34 45	27 02	M.	+26 08	W. ½ N.		+ 26	+52	+27 26		
	−34 40	27 10	CL.	+27 58	W. ½ N.		+ 26	+52	+29 16		
	−34 40	27 10	BN.	+28 21	W. ½ N.	−57 06	+ 26	+52	+29 39	+28 41	
	−34 45	27 00	CL.	+26 52	W. ½ N.		+ 26	+52	+28 10		
15 Noon.	−34 51	26 46	CL.	+28 50	N.W. by W. ½ W.		+ 02	+52	+29 44		
P.M.	−34 51	25 58	M.	+27 54	N.W. by W.		00	+52	+28 46		
	−34 51	25 58	CL.	+27 54	N.W. by W.		00	+52	+28 46		
16 A.M.	−35 36	23 38	M.	+27 11	W. ½ S.		+ 27	+52	+28 30		
	−35 36	23 38	BN.	+27 26	W. ½ S.		+ 27	+52	+28 45		
	−35 40	23 34	CL.	+28 06	W. by N.	−56 08	+ 17	+52	+29 15	+29 26	Card unsteady.
	−35 42	23 32	CL.	+28 14	W. by N.		+ 17	+52	+29 23		
	−35 43	23 31	CL.	+31 16	N. ½ E.		− 53	+52	+31 15		
17 A.M.	−35 40	21 41	CL.	+28 38	N.W. ½ W.	−55 25	− 14	+52	+29 16	+29 16	
	−35 40	21 34	M.	+28 21	W.N.W.		+ 04	+52	+29 17		
18 A.M.	−35 06	20 46	M.	+26 41	W. by S.	−55 08	+ 23	+52	+27 56	+27 56	
19 A.M.	−35 08	20 24	CL.	+27 29	S.W. ¾ S.	−54 50	+ 19	+52	+28 40	+28 47	
	−35 08	20 24	M.	+27 43	S.W. ¾ S.		+ 19	+52	+28 54		
20 A.M.	−34 55	19 35	CL.	+29 00	N.W.		− 19	+52	+29 33		
	−34 55	19 35	CL.	+28 14	N.W. by W. ½ W.	−54 00	00	+52	+29 06	+28 57	
	−34 55	19 30	CL.	+27 34	N.W. ½ W.		− 14	+52	+28 12		

Observations of Declination. (Continued.)

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Declination.		Remarks.
1845.	° ′	° ′		° ′		° ′	° ′	′	° ′	° ′	
June 23.	−34 12	18 27	M.	+29 11	N.	−53 37	− 50	+52	+29 13	+29 15	To obtain the corrections for the ship's iron.
	At anchor in Simon's Bay.	Cape of Good Hope.	M.	+28 52	N.N.W.		− 37	+52	+29 07		
			M.	+28 23	N.W.		− 19	+52	+28 56		
			M.	+28 23	W.N.W.		+ 04	+52	+29 19		
			M.	+27 40	W.		+ 26	+52	+28 58		
			M.	+27 28	W.S.W.		+ 21	+52	+28 41		
			M.	+27 14	S.W.		+ 11	+52	+28 17		
			M.	+27 40	S.S.W.		+ 02	+52	+28 34		
			M.	+28 36	S.		− 07	+52	+29 21		
			M.	+29 30	S.S.E.		− 20	+52	+30 02		
			M.	+29 34	S.E.		− 39	+52	+29 47		
			M.	+29 47	E.S.E.		−1 01	+52	+29 38		
			M.	+30 22	E.		−1 23	+52	+29 51		
			M.	+29 56	E.N.E.		−1 19	+52	+29 29		
			M.	+29 51	N.E.		−1 09	+52	+29 34		
			M.	+29 26	N.N.E.		−1 00	+52	+29 18		
July 1.	−33 56	18 29	Cl.	+28 26	To obtain the Index Corrections for Cards A and J; true Declination = +29 07.			+52	+29 18	+29 07	Card J. error −52′. Card A. error −47′.
	Magnetic Observatory, Cape of Good Hope.		Cl.	+28 11				+52	+29 03		
11.			Cl.	+28 07				+52	+28 59		
			Cl.	+28 20				+47	+29 07		

Observations of the Inclination made on board Her Majesty's hired Bark "Pagoda," from the 10th of January to the 21st of July 1845, with Needle A (Fox C. 9). Face East.

Observer Lieut. T. E. L. Moore, R.N. One hour after Noon.

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.	Remarks.
1845.	° ′	° ′		° ′		′	′	° ′	
Jan. 10.	−34 46	17 46	Direct.	−54 26	W. by N.				
			Needle N.	−54 44	W. by N.				
			Needle S.	−53 27	W. by N.				
			Mag. N.	−54 22	W. by N.	+63	−26	−53 34	Fresh breeze, a head swell.
			Mag. N.S.	−53 53	W. by N.				
			Mag. S.	−53 54	W. by N.				
			Direct.	−54 32	W. by N.				
11.	−35 29	15 09	Direct.	−52 27	N.W. by W.				
			Needle N.	−52 38	N.W. by W.				
			Needle S.	−51 42	N.W. by W.				
			Mag. N.S.	−52 55	N.W. by W.	+80	−26	−51 27	A little motion.
			Mag. N.	−52 15	N.W. by W.				
			Mag. S.	−52 09	N.W. by W.				
12.	−35 17	14 00	Direct.	−51 45	W. ½ S.				
			Needle N.	−52 17	W. ½ S.				
			Needle S.	−51 20	W. ½ S.				
			Mag. N.S.	−51 56	W. ½ S.	+50	−26	−51 16	A little motion.
			Mag. N.	−51 29	W. ½ S.				
			Mag. S.	−51 26	W. ½ S.				
			Direct.	−51 31	W. ½ S.				
13.	−35 24	13 23	Direct.	−51 38	S.W. ½ S.				
			Needle N.	−51 31	S.W. ½ S.				
			Needle S.	−50 41	S.W. ½ S.				
			Mag. N.S.	−51 42	S.W. ½ S.	+27	−26	−51 19	A little motion.
			Mag. N.	−51 18	S.W. ½ S.				
			Mag. S.	−51 10	S.W. ½ S.				
15.	−38 42	14 27	Direct.	−53 30	S. by W. ½ W.				
			Needle N.	−53 47	S. by W. ½ W.				
			Needle S.	−52 36	S. by W. ½ W.				
			Mag. N.S.	−53 38	S. by W. ½ W.	+18	−26	−53 31	A head swell, table unsteady.
			Mag. N.	−53 19	S. by W. ½ W.				
			Mag. S.	−53 22	S. by W. ½ W.				
			Direct.	−53 33	S. by W. ½ W.				
16.	−39 10	14 38	Direct.	−54 03	S.W. by W. ½ W.				
			Needle N.	−54 24	S.W. by W. ½ W.				
			Needle S.	−53 30	S.W. by W. ½ W.				
			Mag. N.S.	−54 07	S.W. by W. ½ W.	+12	−26	−54 12	Table very unsteady.
			Mag. N.	−54 05	S.W. by W. ½ W.				
			Mag. S.	−53 58	S.W. by W. ½ W.				
			Direct.	−53 36	S.W. by W. ½ W.				
17.	−40 41	14 16	Direct.	−55 17	W.S.W.				
			Needle N.	−55 27	W.S.W.	+40	−26	−54 59	A heavy head swell, much motion.
			Needle S.	−54 47	W.S.W.				
			Mag. N.S.	−55 22	W.S.W.				
21.	−50 21	10 31	Direct.	−55 39	S.W.				
			Needle N.	−55 32	S.W.				
			Needle S.	−55 15	S.W.	+24	−26	−55 34	Moderate breezes, a little motion.
			Mag. N.S.	−55 49	S.W.				
			Mag. N.	−55 25	S.W.				
			Mag. S.	−55 31	S.W.				

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.	Remarks.
1845.	° ′	° ′		° ′		′		° ′	
Jan. 23.	−50 48	10 18	Direct.	−57 23	S.W.byW.½W.				
			Needle N.	−57 45	S.W.byW.½W.				
			Needle S.	−57 07	S.W.byW.½W.				
			Mag. N.S.	−57 45	S.W.byW.½W.	+34	−26	−57 19	A little motion.
			Mag. N.	−57 28	S.W.byW.½W.				
			Mag. S.	−57 19	S.W.byW.½W.				
			Direct.	−57 25	S.W.byW.½W.				
24.	−51 44	9 36	Direct.	−57 24	S.W. by W.	+30	−26	−57 28	Moderate breeze, table steady.
			Needle N.	−57 42	S.W. by W.				
24.	−51 56	9 30	Direct.	−57 41	S.W.byW.½W.				
			Mag. N.S.	−57 46	S.W.byW.½W.	+28	−26	−57 42	A head swell, much motion 4½ P.M.
			Direct.	−57 44	S.W.byW.½W.				
25.	−53 21	7 32	Direct.	−57 26	S.W.byW.½W.				
			Needle N.	−57 51	S.W.byW.½W.				
			Needle S.	−57 01	S.W.byW.½W.				
			Mag. N.S.	−57 24	S.W.byW.½W.	+28	−26	−57 24	Ship passing through streams of loose ice.
			Mag. N.	−57 33	S.W.byW.½W.				
			Mag. S.	−57 21	S.W.byW.½W.				
			Direct.	−57 24	S.W.byW.½W.				
26.	−54 02	6 02	Direct.	−57 56	W. by N.				
			Needle N.	−57 49	W. by N.				
			Needle S.	−57 02	W. by N.				
			Mag. N.S.	−57 55	W. by N.	+61	−26	−56 58	Table steady, small pieces of loose ice about the ship.
			Mag. N.	−57 05	W. by N.				
			Mag. S.	−57 18	W. by N.				
			Direct.	−57 43	W. by N.				
27.	−55 18	5 55	Direct.	−57 30	S.S.W. ½ W.				
			Needle N.	−58 23	S.S.W. ½ W.	+10	−26	−58 12	Ship pitching heavily, fresh breezes.
			Direct.	−57 54	S.S.W. ½ W.				
31.	−61 14	9 07	Direct.	−61 13	S.S.E.				
			Needle N.	−61 41	S.S.E.				
			Needle S.	−60 41	S.S.E.				
			Mag. N.S.	−61 04	S.S.E.	+05	−26	−61 43	Table steady, heavy snow.
			Mag. N.	−60 58	S.S.E.				
			Mag. S.	−61 26	S.S.E.				
			Direct.	−61 23	S.S.E.				
Feb. 1.	−62 06	12 52	Direct.	−62 56	S.E. by S.				
			Needle N.	−62 41	S.E. by S.	0	−26	−63 17	Much motion, table very unsteady, heavy snow.
			Needle S.	−62 36	S.E. by S.				
			Direct.	−63 12	S.E. by S.				
2.	−61 56	16 36	Direct.	−63 59	S.E. ½ E.				
			Needle N.	−62 25	S.E. ½ E.				
			Needle S.	−63 37	S.E. ½ E.				
			Needle N.S.	−63 53	S.E. ½ E.	+13	−26	−63 55	Heavy snow, a head sea, ship pitching violently, water clear from ice.
			Mag. N.	−64 02	S.E. ½ E.				
			Mag. S.	−63 51	S.E. ½ E.				
			Direct.	−64 09	S.E. ½ E.				
3.	−61 50	19 14	Direct.	−65 09	W.S.W.	+25			
			Direct.	−64 49	N.W.	+92			
			Direct.	−65 00	W.	+47	−26	−64 44	Calm.
			Direct.	−64 59	W.S.W.	+25			
			Direct.	−64 44	S.W.	+03			
4.	−63 00	20 40	Direct.	−64 13	S.W.				
			Needle N.	−64 12	S.W.				
			Needle S.	−63 39	S.W.	+03	−26	−64 25	Unsteady.
			Needle N.S.	−64 06	S.W.				
			Mag. N.	−63 59	S.W.				
			Mag. S.	−64 06	S.W.				

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections.		Corrected Inclination.	Remarks.
						Ship's attraction.	Index.		
1845.	° ′	° ′		° ′		′	′	° ′	
Feb. 5.	−63 19	21 48	Direct.	−65 17	S.S.E.				
			Needle N.	−64 39	S.S.E.				
			Needle S.	−64 29	S.S.E.				
			Needle N.S.	−64 39	S.S.E.	−15	−26	−65 35	Heavy swell from S.E., light breeze, table steady.
			Mag. N.	−64 46	S.S.E.				
			Mag. S.	−64 52	S.S.E.				
			Direct.	−65 25	S.S.E.				
6.	−64 25	24 18	Direct.	−66 17	S.S.E. ½ E.				
			Needle N.	−66 16	S.S.E. ½ E.				
			Needle S.	−65 28	S.S.E. ½ E.	−14	−26	−66 41	Table steady.
			Needle N.S.	−65 58	S.S.E. ½ E.				
			Direct.	−66 07	S.S.E. ½ E.				
7.	−65 39	28 48	Direct.	−67 14	S. by E. ½ E.				
			Needle N.	−67 19	S. by E. ½ E.				
			Needle S.	−66 54	S. by E. ½ E.				
			Needle N.S.	−67 05	S. by E. ½ E.	−22	−26	−67 56	Table steady.
			Mag. N.	−67 02	S. by E. ½ E.				
			Mag. S.	−67 10	S. by E. ½ E.				
8.	−66 27	30 45	Direct.	−68 28	S.E. by E.				
			Needle N.	−68 09	S.E. by E.				
			Needle S.	−67 49	S.E. by E.				
			Needle N.S.	−68 04	S.E. by E.	+05	−26	−68 31	Fresh breeze, table steady.
			Mag. N.	−68 08	S.E. by E.				
			Mag. S.	−68 06	S.E. by E.				
			Direct.	−68 26	S.E. by E.				
9.	−66 36	36 50	Direct.	−69 11	S.E. by E.				
			Needle N.	−69 13	S.E. by E.				
			Needle S.	−68 40	S.E. by E.				
			Needle N.S.	−68 47	S.E. by E.	+05	−26	−69 22	Light breeze, very steady.
			Mag. N.	−68 59	S.E. by E.				
			Mag. S.	−69 02	S.E. by E.				
			Direct.	−69 20	S.E. by E.				
10.	−67 10	38 51	Direct.	−70 12	S. by W.				
			Needle N.	−70 53	S. by W.				
			Needle S.	−70 02	S. by W.				
			Needle N.S.	−69 41	S. by W.	−32	−26	−71 07	Steady.
			Mag. N.	−70 00	S. by W.				
			Mag. S.	−70 12	S. by W.				
			Direct.	−70 05	S. by W.				
11.	−67 39	40 28	Direct.	−70 33	N.E.	+89	−26	−69 27	Strong breeze, sailing along a pack of ice, unsteady.
			Needle N.	−70 26	N.E.				
12.	−67 18	40 22	Direct.	−69 36	S. ½ E.				
			Needle N.	−69 43	S. ½ E.				
			Needle S.	−68 58	S. ½ E.				
			Needle N.S.	−69 28	S. ½ E.	−32	−26	−70 20	Fresh breeze, table unsteady.
			Mag. N.	−69 18	S. ½ E.				
			Mag. S.	−69 03	S. ½ E.				
			Direct.	−69 28	S. ½ E.				
13.	−66 55	40 16	Direct.	−70 12	E.N.E.				
			Needle N.	−70 28	E.N.E.				
			Needle S.	−69 54	E.N.E.				
			Needle N.S.	−70 08	E.N.E.	+67	−26	−69 30	A swell from the eastward, table unsteady.
			Mag. N.	−70 14	E.N.E.				
			Mag. S.	−70 06	E.N.E.				
			Direct.	−70 13	E.N.E.				

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed. Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.		Remarks.
1845. Feb. 14.	−66° 24′	40° 01′	Direct.	−70° 38′	N.E. by N.	′	′	° ′	° ′	
			Needle N.	−70 07	N.E. by N.	+89	−26	−69 15		Very squally, with thick weather, table unsteady.
			Needle S.	−70 10	N.E. by N.					
			Direct.	−70 17	N.E. by N.					
16.	−64 52	38 37	Direct.	−68 03	S. by E.					
			Needle N.	−68 13	S. by E.					
			Needle S.	−67 20	S. by E.					
			Needle N.S.	−68 10	S. by E.	−30	−26	−68 53		A heavy swell, unsteady.
			Mag. N.	−67 52	S. by E.					
			Mag. S.	−68 06	S. by E.					
17.	−64 43	40 12	Direct.	−69 58	N.					
			Needle N.	−70 02	N.					
			Needle S.	−69 22	N.					
			Needle N.S.	−68 50	N.	+76	−26	−68 18		Calm, a heavy sea, not steady.
			Mag. N.	−68 25	N.					
			Mag. S.	−68 30	N.					
			Direct.	−68 50	N.					
19.	−64 05	41 09	Direct.	−70 13	E. by S.	+27	−26	−70 02		Observed the inner circle to have moved, table very unsteady.
			Needle N.	−69 52	E. by S.					
20.	−63 19	45 52	Direct.	−70 29	S.E. by E. ½ E.					
			Needle N.	−69 51	S.E. by E. ½ E.	+10	−26	−70 14		A heavy swell.
			Needle S.	−69 39	S.E. by E. ½ E.					
			Needle N.S.	−69 54	S.E. by E. ½ E.					
	−63 22	45 58	Direct.	−69 54	S.E.				−70 15	
			Needle N.	−69 53	S.E.					
			Needle S.	−69 06	S.E.	−08	−26	−70 15		Strong breezes, with a heavy sea running.
			Needle N.S.	−69 50	S.E.					
21.	−63 36	46 46	Direct.	−69 38	S.E.					
			Needle N.	−69 39	S.E.	−08	−26	−70 05		Table unsteady, eight icebergs in sight.
			Needle S.	−69 03	S.E.					
			Needle N.S.	−69 43	S.E.					
	−63 36	46 50	Direct.	−70 01	S.E.				−70 13	
			Needle N.	−70 02	S.E.					
			Needle S.	−69 34	S.E.					
			Needle N.S.	−69 32	S.E.	−10	−26	−70 21		Much motion.
			Mag. N.	−69 37	S.E.					
			Mag. S.	−69 32	S.E.					
			Direct.	−70 00	S.E.					
25.	−61 34	53 49	Direct.	−70 44	S.E. ½ E.					
			Needle N.	−70 22	S.E. ½ E.					
			Needle S.	−69 58	S.E. ½ E.					
			Needle N.S.	−70 08	S.E. ½ E.	−05	−26	−70 49		Iceblink to the southward, fresh breezes, table unsteady.
			Mag. N.	−70 08	S.E. ½ E.					
			Mag. S.	−70 08	S.E. ½ E.					
			Direct.	−70 42	S.E. ½ E.					
26.	−61 19	57 33	Direct.	−71 03	S.E. ½ E.					
			Needle N.	−71 24	S.E. ½ E.	−07	−26	−71 26		No ice in sight, unsteady.
			Needle S.	−70 26	S.E. ½ E.					
			Needle N.S.	−70 40	S.E. ½ E.					
	−61 22	57 41	Direct.	−71 01	S.E.					
			Needle N.	−71 22	S.E.					
			Needle S.	−70 30	S.E.	−13	−26	−71 27		Fresh breeze, table steady.
			Needle N.S.	−70 43	S.E.					
			Mag. N.	−70 29	S.E.					
			Mag. S.	−70 40	S.E.					

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.		Remarks.
1845.	° ′	° ′		° ′		′	′	° ′	° ′	
Feb. 27.	−61 10	64 20	Direct.	−71 20	S.S.E. ½ E.					
			Needle N.	−71 48	S.S.E. ½ E.	−26	−26	−72 18		Very unsteady.
			Needle S.	−71 10	S.S.E. ½ E.					
28.	−61 49	71 30	Direct.	−72 44	S.S.E.					
			Needle N.	−72 49	S.S.E.					
			Needle S.	−72 36	S.S.E.					
			Needle N.S.	−72 43	S.S.E.	−33	−26	−73 36		Table steady.
			Mag. N.	−72 34	S.S.E.					
			Mag. S.	−72 18	S.S.E.				−73 38	
	−61 49	71 30	Direct.	−72 45	S.S.E.					
			Needle N.	−73 01	S.S.E.					
			Needle S.	−72 12	S.S.E.	−36	−26	−73 40		Steady.
			Needle N.S.	−72 35	S.S.E.					
Mar. 1.	−62 10	72 25	Direct.	−73 37	S.E. by S.					
			Needle N.	−73 54	S.E. by S.					
			Needle S.	−73 25	S.E. by S.	−26	−26	−74 33		Calm, table steady.
			Needle N.S.	−73 42	S.E. by S.					
			Mag. N.	−73 39	S.E. by S.					
			Mag. S.	−73 45	S.E. by S.					
2.	−62 47	76 14	Direct.	−73 41	S. by E. ½ E.					
			Needle N.	−74 12	S. by E. ½ E.					
			Needle S.	−73 39	S. by E. ½ E.	−40	−26	−74 55		
			Needle N.S.	−73 45	S. by E. ½ E.					
			Mag. N.	−73 48	S. by E. ½ E.					
			Mag. S.	−73 48	S. by E. ½ E.				−75 05	Steady breeze, table steady.
	−62 49	76 16	Direct.	−74 11	S.					
			Needle N.	−74 21	S.					
			Needle S.	−73 43	S.	−45	−26	−75 15		
			Needle N.S.	−73 58	S.					
			Direct.	−74 10	S.					
3.	−64 20	79 38	Direct.	−75 02	S. by W. ½ W.					
			Needle N.	−74 56	S. by W. ½ W.					
			Needle S.	−74 39	S. by W. ½ W.	−40	−26	−75 57		Squalls of snow, fresh breeze, unsteady.
			Needle N.S.	−74 41	S. by W. ½ W.					
			Direct.	−74 56	S. by W. ½ W.					
5.	−61 42	85 07	Direct.	−76 13	S.E. ½ E.					
			Needle N.	−76 40	S.E. ½ E.					
			Needle S.	−76 18	S.E. ½ E.	−17	−26	−76 58		Table very unsteady, a strong breeze, aurora visible.
			Needle N.S.	−75 59	S.E. ½ E.					
			Direct.	−76 06	S.E. ½ E.					
6.	−60 48	88 33	Direct.	−76 21	S.E.					
			Needle N.	−76 41	S.F.					
			Needle S.	−76 06	S.E.					
			Needle N.S.	−75 46	S.E.	−23	−26	−77 04		Very unsteady.
			Mag. N.	−75 56	S.E.					
			Mag. S.	−76 16	S.E.					
			Direct.	−76 26	S.E.					
7.	−61 23	91 15	Direct.	−76 26	S.S.W.					
			Needle N.	−77 02	S.S.W.					
			Needle S.	−76 12	S.S.W.					
			Needle N.S.	−76 28	S.S.W.	−46	−26	−77 41		Aurora visible.
			Mag. N.	−76 13	S.S.W.					
			Mag. S.	−76 35	S.S.W.					
			Direct.	−76 26	S.S.W.					
8.	−61 07	92 10	Direct.	−78 11	E. by S.	+13	−26	−78 24		
			Needle N.	−77 39	E.S.E.				−77 57	Aurora visible; table unsteady; snow.
			Needle S.	−76 55	E.S.E.	00	−26	−77 29		
			Needle N.S.	−76 39	E.S.E.					
			Direct.	−76 59	E.S.E.					

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections.		Corrected Inclination.	Remarks.
						Ship's attraction.	Index.		
1845. Mar. 9.	−60° 30′	92° 34′	Direct.	−77° 12′	E.S.E.	−01′	−26′	−77° 37′	
			Needle N.	−77 31	S.E. by E.			−77° 33′	Very unsteady, aurora visible.
			Needle S.	−76 49	S.E. by E.	−10	−26	−77 28	
			Needle N.S.	−76 26	S.E. by E.				
			Direct.	−76 41	S.E. by E.				
10.	−60 03	96 03	Direct.	−77 10	S.E. by E.				
			Needle N.	−77 25	S.E. by E.	−10	−26	−77 38	Table unsteady, aurora still visible.
			Needle S.	−76 45	S.E. by E.				
			Direct.	−77 01	S.E. by E.				
11	−59 45	99 50	Direct.	−79 30	E. ½ N.				
			Needle N.	−79 13	E. ½ N.				
			Needle S.	−79 29	E. ½ N.				
			Needle N.S.	−79 08	E. ½ N.	+32	−26	−79 23	A heavy sea, very unsteady.
			Mag. N.	−79 45	E. ½ N.				
			Mag. S.	−79 43	E. ½ N.				
			Direct.	−79 35	E. ½ N.				
13.	−57 46	99 17	Direct.	−78 30	E.N.E.				
			Needle N.	−78 04	E.N.E.	+56	−26	−77 43	6 A.M. The aurora seen faintly, very unsteady.
			Needle S.	−78 00	E.N.E.				
			Direct.	−78 20	E.N.E.				
14.	−56 56	101 36	Direct.	−78 04	E. by S.				
			Needle N.	−78 21	E. by S.				
			Needle S.	−77 33	E. by S.	+13	−26	−78 11	A.M. Aurora visible, unsteady; squally, with snow.
			Needle N.S.	−77 54	E. by S.				
			Direct.	−77 58	E. by S.				
15.	−55 40	103 18	Direct.	−78 30	E.N.E.				
			Needle N.	−78 53	E.N.E.				
			Needle S.	−78 31	E.N.E.	+56	−26	−78 09	Unsteady.
			Needle N.S.	−78 53	E.N.E.				
			Direct.	−78 30	E.N.E.				
16.	−54 38	106 15	Direct.	−79 32	E.				
			Needle N.	−79 29	E.				
			Needle S.	−78 48	E.	+25	−26	−79 13	Heavy squalls, unsteady.
			Needle N.S.	−78 55	E.				
			Direct.	−79 13	E.				
17.	−54 10	108 15	Direct.	−79 17	E. by S.				
			Needle N.	−79 31	E. by S.				
			Needle S.	−78 38	E. by S.	+13	−26	−79 19	A strong gale, very unsteady.
			Needle N.S.	−78 56	E. by S.				
			Direct.	−79 10	E. by S.				
18.	−53 00	110 35	Direct.	−78 38	N.E.				
			Needle N.	−78 51	N.E.				
			Needle S.	−78 39	N.E.				
			Needle N.S.	−78 50	N.E.				
			Mag. N.	−78 25	N.E.	+80	−26	−77 39	Unsteady, a heavy swell from the westward, strong breeze.
			Mag. S.	−78 04	N.E.				
			Direct.	−78 26	N.E.				
19.	−51 00	111 29	Direct.	−78 30	N.E.	+80	−26	−77 36	Too unsteady to continue the observation.
20.	−48 57	112 56	Direct.	−77 14	N.E. ½ N.				
			Needle N.	−77 25	N.E. ½ N.				
			Needle S.	−77 01	N.E. ½ N.	+84	−26	−76 04	Very unsteady.
			Needle N.S.	−76 55	N.E. ½ N.				
			Mag. N.	−76 51	N.E. ½ N.				
			Mag. S.	−76 45	N.E. ½ N.				

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections.		Corrected Inclination.	Remarks.
						Ship's attraction.	Index.		
1845.	° ′	° ′		° ′		′	′	° ′	
Mar. 22.	−47 21	115 15	Direct.	−76 42	N.W. ½ N.	+85	−26	−75 32	Light breeze, table steady, thick fog.
			Needle N.	−76 31	N.W. ½ N.				
			Needle S.	−76 11	N.W. ½ N.				
			Needle N.S.	−76 28	N.W. ½ N.				
			Mag. N.	−76 38	N.W. ½ N.				
			Mag. S.	−76 29	N.W. ½ N.				
			Direct.	−76 38	N.W. ½ N.				
24.	−45 08	116 50	Direct.	−74 31	N. by E.	+79	−26	−73 27	A heavy sea, ship pitching heavily, very unsteady.
			Needle N.	−74 12	N. by E.				
			Needle S.	−74 02	N. by E.				
			Direct.	−74 37	N. by E.				
25.	−43 22	116 49	Direct.	−73 25	N. ½ E.	+76	−26	−72 10	A heavy westerly swell, unsteady.
			Needle N.	−73 10	N. ½ E.				
			Needle S.	−72 56	N. ½ E.				
			Needle N.S.	−73 18	N. ½ E.				
			Mag. N.	−72 26	N. ½ E.				
			Mag. S.	−72 46	N. ½ E.				
26.	−41 00	116 42	Direct.	−72 09	N. by W.	+80	−26	−71 14	A heavy westerly swell.
			Needle N.	−71 50	N. by W.				
			Needle S.	−71 55	N. by W.				
			Needle N.S.	−72 44	N. by W.				
			Mag. N.	−72 00	N. by W.				
			Mag. S.	−72 12	N. by W.				
			Direct.	−72 09	N. by W.				
27.	−38 40	116 15	Direct.	−69 08	N. by E.	+81	−26	−68 04	Table steady.
			Needle N.	−69 08	N. by E.				
			Needle S.	−68 38	N. by E.				
			Needle N.S.	−68 59	N. by E.				
			Direct.	−69 03	N. by E.				
28.	−37 00	116 57	Direct.	−67 24	N. by E.	+80	−26	−66 21	Table steady, cloudy.
			Needle N.	−67 37	N. by E.				
			Needle S.	−66 52	N. by E. ½ E.				
			Needle N.S.	−67 14	N. by E. ½ E.				
			Mag. N.	−67 08	N. by E. ½ E.				
			Mag. S.	−67 18	N. by E. ½ E.				
29.	−36 11	116 48	Direct.	−66 53	N.N.E.	+84	−26	−66 00	Unsteady.
			Needle N.	−67 11	N.N.E.				
			Needle S.	−66 51	N.N.E.				
			Needle N.S.	−66 57	N.N.E.				
30.	−35 07	117 28	Direct.	−66 15	N.N.E.	+84	−26	−65 24	Unsteady.
			Needle N.	−66 25	N.N.E.				
			Needle S.	−66 50	N.N.E.				
			Needle N.S.	−65 59	N.N.E.				
April 7.	−35 02	117 56	Direct.	−64 42	....	....	−26	−64 55	At the tents, King George's Sound.
			Needle N.	−64 39					
			Needle S.	−64 08					
			Needle N.S.	−64 39					
			Mag. N.	−64 18					
			Mag. S.	−64 29					
11.	−35 02	117 56	Direct.	−65 22	....	....	+18	−64 52	At the tents, King George's Sound. The readings of needle A. being very discordant put in needle B., the change having been made between the 7th and 10th of April*.
			Needle N.	−65 04					
			Needle S.	−64 48					
			Needle N.S.	−65 13					
			Mag. N.	−65 11					
			Mag. S.	−65 15					

* Needle A.	° ′	Needle B.	° ′
Face east	64 29	Face west	65 13
Face west	65 13	Face east	65 10

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.	Remarks.
1845.	° ′	° ′		° ′		′	′	° ′ ° ′	
Apr. 12.	−35 02	117 56	Direct.	−65 34					
			Needle N.	−65 39					
			Needle S.	−65 07					
			Needle N.S.	−65 25	....	....	+18	−65 07	At the tents, King George's Sound.*
			Mag. N.	−65 21					
			Mag. S.	−65 23					
19.	−35 02	117 56	Direct.	−65 15	S.				
			Needle N.	−64 55	S.	−21	+18	−65 02	
			Needle S.	−64 32	S.				
			Direct.	−65 15	S.				
20.	−35 06	117 55	Direct.	−66 29	S.E. by E.	+12	+18	−65 59 } 65 59	Unsteady.
			Direct.	−65 58	S. by E.	−18	+18	−65 58	
23.	−35 30	114 35	Direct.	−66 33	N.W.				
			Needle N.	−67 30	N.W.				
			Needle S.	−66 30	N.W.	+92	+18	−64 54	Very unsteady.
			Needle N.S.	−66 35	N.W.				
			Direct.	−66 30	N.W.				
25.	−32 24	111 26	Direct.	−64 03	N.W. by N.				
			Needle N.	−64 22	N.W. by N.				
			Needle S.	−63 31	N.W. by N.				
			Needle N.S.	−63 58	N.W. by N.	+88	+18	−62 22	Moderate breeze, table steady.
			Mag. N.	−64 43	N.W. by N.				
			Mag. S.	−64 06	N.W. by N.				
			Direct.	−64 13	N.W. by N.				
27.	−29 16	106 49	Direct.	−60 10	W.N.W.				
			Needle N.	−60 56	W.N.W.				
			Needle S.	−60 16	W.N.W.	+72	+18	−59 30	Very unsteady.
			Needle N.S.	−60 30	W.N.W.				
			Direct.	−60 53	W.N.W.				
28.	−27 35	106 32	Direct.	−58 47	W. by N.				
			Needle N.	−58 46	W. by N.				
			Needle S.	−58 51	W. by N.				A heavy swell, unsteady.
			Needle N.S.	−58 24	W. by N.	+61	+18	−57 26	
			Mag. N.	−58 53	W. by N.				
			Mag. S.	−58 53	W. by N.				
			Direct.	−58 43	W. by N.				
29.	−25 46	104 55	Direct.	−56 54	N.W.				
			Needle N.	−56 54	N.W.	+88	+18	−55 05	Very unsteady.
			Needle S.	−56 41	N.W.				
			Direct.	−56 54	N.W.				
May 1.	−23 58	99 06	Direct.	−55 48	N.W.				
			Needle N.	−55 30	N.W.	+87	+18	−53 46	Unsteady.
			Needle S.	−55 22	N.W.				
			Needle N.S.	−55 28	N.W.				
2.	−24 01	97 25	Direct.	−55 37	W. ½ N.				
			Needle N.	−55 58	W. ½ N.	+56	+18	−54 18	Unsteady.
			Needle S.	−55 01	W. ½ N.				
			Needle N.S.	−55 32	W. ½ N.				

* Captain FITZROY having left a memorandum at King George's Sound stating that he had found local magnetic disturbance at King George's Sound, the Inclination was observed on the opposite side of the bay, on the same day as at the tents: needle B gave as follows (no correction being here applied for Index in either case):—

At the tents.		On the opposite side of the bay.	
Face west...........	−65° 13′	Face west...........	−65° 16′
Face east	−65 10	Face east	−65 30
Mean........	−65 11·5	Mean........	−65 23

The distance between the two stations was between three and four miles.

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections.		Corrected Inclination.	Remarks.
						Ship's attraction.	Index.		
1845.	° ′	° ′		° ′		′	′	° ′ ° ′	
May 3.	−23 50	95 56	Direct.	−55 38	W. ½ N.				
			Needle N.	−56 17	W. ½ N.				
			Needle S.	−55 00	W. ½ N.	+56	+18	−54 26	Unsteady.
			Needle N.S.	−55 38	W. ½ N.				
			Direct.	−55 48	W. ½ N.				
4.	−24 17	93 50	Direct.	−55 43	W.N.W.				
			Needle N.	−56 08	W.N.W.				
			Needle S.	−55 08	W.N.W.	+72	+18	−54 07	Unsteady.
			Needle N.S.	−55 33	W.N.W.				
			Direct.	−55 35	W.N.W.				
5.	−24 02	92 07	Direct.	−54 42	N.W.				
			Needle N.	−54 39	N.W.	+88	+18	−52 44	Cross sea, with rolling motion.
			Needle S.	−54 10	N.W.				
7.	−21 44	89 38	Direct.	−53 33	N.W. ½ W.				
			Needle N.	−53 47	N.W. ½ W.	+83	+18	−51 45	Cross sea, with rolling motion.
			Needle S.	−53 03	N.W. ½ W.				
			Needle N.S.	−53 19	N.W. ½ W.				
8.	−20 38	87 50	Direct.	−52 48	W. ½ N.				
			Needle N.	−53 18	W. ½ N.				
			Needle S.	−51 58	W. ½ N.	+54	+18	−51 33	Very unsteady.
			Needle N.S.	−53 00	W. ½ N.				
			Direct.	−52 45	W. ½ N.				
9.	−20 37	85 02	Direct.	−52 37	W. ½ N.				
			Needle N.	−53 16	W. ½ N.				
			Needle S.	−52 18	W. ½ N.	+55	+18	−51 21	Unsteady.
			Needle N.S.	−52 20	W. ½ N.				
			Direct.	−52 20	W. ½ N.				
10.	−20 25	82 00	Direct.	−52 31	W. ¾ N.				
			Needle N.	−52 30	W. ¾ N.				
			Needle S.	−52 48	W. ¾ N.				
			Needle N.S.	−52 26	W. ¾ N.	+68	+18	−51 05	Fresh breeze, table unsteady.
			Direct.	−52 31	W. ¾ N.				
			Mag. N.	−52 19	W. ¾ N.				
			Mag. S.	−52 29	W. ¾ N.				
11.	−20 36	79 10	Direct.	−53 10	W. ¾ N.				
			Needle N.	−53 03	W. ¾ N.				
			Needle S.	−52 41	W. ¾ N.	+68	+18	−51 46	Steady.
			Needle N.S.	−53 18	W. ¼ N.				
			Direct.	−53 17	W. ¼ N.				
12.	−20 44	78 31	Direct.	−52 15	S.	+15	+18	−52 00	
			Needle N.	−52 46	S.				
			Direct.	−52 42	S.S.W.	+19	+18	−52 19	
			Needle N.	−53 05	S.S.W.				
			Direct.	−53 10	S.W.	+30	+18	−52 15	
			Needle N.	−52 57	S.W.				
			Direct.	−53 11	W.S.W.	+44	+18	−52 18	
			Needle N.	−53 30	W.S.W.				
			Direct.	−53 06	W.	+51	+18	−52 11 −52 00	Light air, table steady. The observations at N.W., N.N.W., and N. have not been included in the mean.
			Needle N.	−53 34	W.				
			Direct.	−53 01	W.N.W.	+72	+18	−51 45	
			Needle N.	−53 30	W.N.W.				
			Direct.	−52 33	N.W.	+86	+18	−50 44	
			Needle N.	−52 23	N.W.				
			Direct.	−51 59	N.N.W.	+68	+18	−50 53	
			Needle N.	−52 38	N.N.W.				
			Direct.	−52 31	N.	+72	+18	−51 10	
			Needle N.	−52 49	N.				

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.		Remarks.
1845.	° ′	° ′		° ′		′	′	° ′	° ′	
May 12.	−20 44	78 31	Direct.	−52 58	N.N.E.	+68	+18	−51 33		
			Needle N.	−53 04	N.N.E.					
			Direct.	−53 18	N.E.	+86	+18	−51 40	−52 00	Light air, table steady.
			Needle N.	−53 30	N.E.					The observations at N.W., N.N.W., and N. have not been included in the mean.
			Direct.	−53 15	E.N.E.	+72	+18	−52 02		
			Needle N.	−53 49	E.N.E.					
13.	−20 39	77 43	Direct.	−53 15	S.E.	+30	+18	−52 34		
			Needle N.	−53 29	S.E.					
			Direct.	−53 25	E.	+51	+18	−52 15		
			Needle N.	−53 41	E.					
			Direct.	−53 05	N.E.	+86	+18	−51 42		
			Needle N.	−53 47	N.E.				−51 58	A rolling motion, not very steady at some points.
			Direct.	−52 42	N.	−72	+18	−51 28		
			Needle N.	−53 13	N.					
			Direct.	−52 58	N.W.	+86	+18	−51 30		
			Needle N.	−53 30	N.W.					
			Direct.	−53 27	W.	+51	+18	−52 16		
			Needle N.	−53 41	W.					
16.	−20 26	70 36	Direct.	−53 52	W. by N.					
		69 00	Needle N.	−53 49	W. by N.					
			Needle S.	−53 15	W. by N.	+62	+18	−52 19		Unsteady.
			Needle N.S.	−53 47	W. by N.					
			Direct.	−53 30	W. by N.					
17.	−20 34	69 24	Direct.	−54 05	W. by N.					
			Needle N.	−54 10	W. by N.					
			Needle S.	−53 52	W. by N.	+62	+18	−52 44		Very unsteady.
			Needle N.S.	−54 01	W. by N.					
			Direct.	−54 10	W. by N.					
	−20 34	69 24	Direct.	−54 41	S.W. by W.				−53 01	
			Needle N.	−54 23	S.W. by W.					
			Needle S.	−54 00	S.W. by W.					
			Needle N.S.	−53 58	S.W. by W.	+37	+18	−53 18		Very unsteady.
			Mag. N.	−54 15	S.W. by W.					
			Mag. S.	−54 09	S.W. by W.					
			Direct.	−54 06	S.W. by W.					
18.	−21 08	68 04	Direct.	−54 21	W. by N.	+62	+18	−53 01		Unsteady.
19.	−21 11	67 54	Direct.	−55 10	W. by N.					
			N.	−56 07	W. by N.					
			S.	−54 54	W. by N.	+62	+18	−53 46		Steady.
			N.S.	−55 09	W. by N.					
			Mag. N.	−55 10	W. by N.					
20.	−21 12	67 29	Direct.	−55 23	W. by N.					
			Needle N.	−55 46	W. by N.					
			Needle S.	−54 56	W. by N.	+62	+18	−53 59		Table unsteady.
			Needle N.S.	−55 11	W. by N.					
			Direct.	−55 19	W. by N.					
21.	−21 01	66 50	Direct.	−55 19	W. by N.					
			Needle N.	−55 35	W. by N.					
			Needle S.	−54 40	W. by N.					
			Needle N.S.	−55 11	W. by N.	+62	+18	−53 49		Unsteady.
			Mag. N.	−55 17	W. by N.					
			Mag. S.	−54 40	W. by N.					
			Direct.	−55 17	W. by N.					
22.	−20 40	62 58	Direct.	−55 13	W. by N.					
			Needle N.	−55 32	W. by N.					
			Needle S.	−54 59	W. by N.					
			Needle N.S.	−55 09	W. by N.	+62	+18	−53 53		Table steady.
			Needle N.S.	−55 14	W. by N.					
			Needle N.S.	−55 12	W. by N.					

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.	Remarks.
1845.	° ′	° ′		° ′		′	′	° ′ ° ′	
May 27.	−20 09	57 31	Direct.	−53 53					
			Needle N.	−54 27					
			Needle S.	−53 29	....	....	+18	−53 38	On shore at Mauritius.
			Needle N.S.	−53 59					
			Mag. N.	−53 57					
			Mag. S.	−53 52					
30.	−21 50	53 25	Direct.	−55 50	S.W. by W.				
			Needle N.	−56 20	S.W. by W.	+32	+18	−54 51	Unsteady.
			Needle S.	−55 05	S.W. by W.				
			Needle N.S.	−55 30	S.W. by W.				
June 3.	−26 26	48 20	Direct.	−60 20	N.W. by W.				
			Needle N.	−60 40	N.W. by W.	+80	+18	−58 46	Unsteady.
			Needle S.	−59 57	N.W. by W.				
			Needle N.S.	−60 38	N.W. by W.				
4.	−27 14	45 50	Direct.	−60 02	N.W. by W.				
			Needle N.	−60 46	N.W. by W.				
			Needle S.	−59 18	N.W. by W.	+80	+18	−58 32	Very unsteady.
			Needle N.S.	−60 32	N.W. by W.				
5.	−28 02	42 40	Direct.	−59 48	N.W. by W.	+80	+18	−58 10	Very unsteady.
8.	−28 57	37 45	Direct.	−60 02	W.				
			Needle N.	−60 30	W.				
			Needle S.	−59 51	W.	+50	+18	−59 14	Steady.
			Needle N.S.	−61 40	W.				
			Mag. N.	−60 08	W.				
			Mag. S.	−60 02	W.				
11.	−30 27	33 41	Direct.	−58 12	W.N.W.	+72	+18	−56 37	Very unsteady, a heavy sea.
			Needle N.	−58 03	W.N.W.				
13.	−31 06	31 26	Direct.	−58 59	W. by S. ½ S.				
			Needle N.	−59 04	W. by S. ½ S.				
			Needle S.	−57 33	W. by S. ½ S.	+38	+18	−57 24	Very unsteady.
			Mag. N.S.	−60 12	W. by S. ½ S.				
			Direct.	−58 55	W. by S. ½ S.				
17.	−35 40	21 40	Direct.	−56 56	W. by N.				
			Needle N.	−57 00	W. by N.	+62	+18	−55 31	
			Mag. N.S.	−56 39	W. by N.				
			Direct.	−56 49	W. by N.				
23.	Simon's Bay, Cape of Good Hope, for local attraction.		Direct.	−53 29	S.	+27	+18	−53 45	
			Needle N.	−54 55	S.				
			Direct.	−53 43	S.E.	+26	+18	−53 37	
			Needle N.	−54 59	S.E.				
			Direct.	−54 38	E.	+51	+18	−53 32	
			Needle N.	−54 44	E.				
			Direct.	−54 40	N.E.	+87	+18	−53 06 −53 24	
			Needle N.	−55 01	N.E.				
			Direct.	−54 31	N.	+75	+18	−53 12	
			Needle N.	−54 59	N.				
			Direct.	−54 45	N.W.	+88	+18	−53 00	
			Needle N.	−54 54	N.W.				
			Direct.	−54 46	W.	+51	+18	−53 39	
			Needle N.	−54 51	W.				
24.	On shore in the Dockyard, in Simon's Bay.		Direct.	−53 53					
			Needle N.	−54 24	....	....	+18	−53 37	
			Needle S.	−53 12					
			Mag. N.S.	−54 09					

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.		Remarks.
1845. June 30.	° ′ −33 56	° ′ 18 29	Direct.	° ′ −53 56			′	° ′	° ′	
			Needle N.	−54 15						
			Needle S.	−52 47						
			Mag. N.S.	−54 06	....	....	+18	−53 22		
			Mag. N.	−53 29						
			Mag. S.	−53 23						
July 2.	−33 56	18 29	Direct.	−53 41						
			Needle N.	−54 11						
			Needle S.	−52 55						
			Mag. N.S.	−54 15	....	....	+18	−53 27	−53 29	Observed at the Magnetic Observatory, Cape of Good Hope.
			Mag. N.	−53 49						
			Mag. S.	−53 41						
11.	−33 56	18 29	Direct.	−53 59						
			Needle N.	−54 08						
			Needle S.	−53 17						
			Mag. N.S.	−54 12	....	....	+18	−53 37		
			Mag. N.	−53 54						
			Mag. S.	−53 59						

Observations of the Inclination made on board Her Majesty's hired Bark "Pagoda," with Needle 1 (Fox No. 1). Face West. Time usually two hours before Noon.

Observer, Lieut. H. Clerk, Royal Artillery.

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.		Remarks.
1844.	° ′	° ′		° ′		′	′	° ′	° ′	
Nov. 10.	Magnetic Observatory, Cape of Good Hope.		Direct.	−53 56	Observed on shore.					
			N.	−53 25		......	+08	−53 31		Needle A. used as deflector, adjusted at 40° from the apparent dip.
	−33 56	18 29	S.	−53 37						
21.			Direct.	−53 53	Observed on shore.					
			N.	−53 25		......	+08	−53 31		
			S.	−53 37						
Dec. 19.	−34 12	18 26	Direct.	−54 15	Observed on shore.					
			N.	−53 43		......	+08	−53 50		Observed in the dock-yard at Simon's Bay.
			S.	−53 55						
1845. Jan. 9.	Working out of False Bay.		Direct.	−54 28	s.e. by s. ½ s.					
			N.	−54 03	s.e. by s. ½ s.	+22	+08	−53 48		
			S.	−54 25	s.e. by s. ½ s.				−53 34	A strong south-east wind, table very unsteady 2 p.m.
			Direct.	−54 48	w. ½ s.					
			N.	−53 58	w. ½ s.	+51	+08	−53 20		Table very unsteady.
			S.	−54 10	w. ½ s.					
10.	−34 44	17 50	Direct.	−54 18	w. by n.					
			N.	−53 48	w. by n.	+61	+08	−52 56		Table unsteady.
			S.	−54 08	w. by n.					
13.	−35 12	13 28	Direct.	−52 33	s.w. by w.					
			N.	−52 03	s.w. by w.	+37	+08	−51 35		Table steady.
			S.	−52 25	s.w. by w.					
14.	−37 25	13 24	Direct.	−52 48	s.w. by w.					
			N.	−51 54	s.w. by w.	+17	+13	−51 44		Up to the 13th of January the deflectors were at 40° from dip; on and after the 14th they were at the dip, so that the same observations gave dip and intensity.
			S.	−52 05	s.w. by w.					
			N.S.	−52 08	s.w. by w.					
15.	−38 37	14 27	Direct.	−54 58	n.w. by w.					
			N.	−53 48	n.w. by w.	+79	+13	−52 39		Very unsteady.
			S.	−54 03	n.w. by w.					
			N.S.	−53 58	n.w. by w.					
16.	−39 10	14 41	Direct.	−55 33	s.w. by w. ½ w.					
			N.	−54 20	s.w. by w. ½ w.	+35	+13	−54 14		Table steady.
			S.	−54 58	s.w. by w. ½ w.					
			N.S.	−55 18	s.w. by w. ½ w.					
17.	−40 21	14 29	Direct.	−56 18	s.w. by w.					
			N.	−55 40	s.w. by w.	+35	+13	−55 10		Much motion.
			S.	−55 52	s.w. by w.					
			N.S.	−56 00	s.w. by w.					
18.	−42 50	13 00	Direct.	−56 38	s.s.w.					
			N.	−55 40	s.s.w.	+12	+13	−55 34		Much motion.
			S.	−55 48	s.s.w.					
			N.S.	−55 50	s.s.w.					
19.	−44 50	13 19	Direct.	−57 18	s.w. by s.					
			N.	−56 25	s.w. by s.	+15	+13	−56 14		Much motion.
			S.	−56 35	s.w. by s.					
			N.S.	−56 30	s.w. by s.					
21.	−47 40	12 25	Direct.	−56 43	s. by e.	+06	+11	−56 29		A calm, very unsteady.
			N.	−56 50	s. by e.					

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.	Remarks.
1845.	° ′	° ′		° ′		′	′	° ′ ° ′	
Jan. 22.	−48 35	10 51	Direct.	−57 23	s.w. by s.	+15	+13	−56 44	Table steady.
			N.	−57 17	s.w. by s.				
			S.	−57 03	s.w. by s.				
			N.S.	−57 05	s.w. by s.				
23.	−50 30	10 25	Direct.	−57 33	s.w. ½ s.	+15	+13	−57 02	Table steady.
			N.	−57 33	s.w. ½ s.				
			S.	−57 45	s.w. ½ s.				
			N.S.	−57 10	s.w. ½ s.				
24.	−51 48	9 33	Direct.	−58 13	s.w. by w.	+25	+13	−57 13	1 P.M. table steady.
			N.	−57 55	s.w. by w.				
			S.	−57 37	s.w. by w.				
			N.S.	−57 40	s.w. by w.				
25.	−52 53	7 53	Direct.	−58 13	s.w. by w.	+25	+13	−57 03	Table rather unsteady.
			N.	−57 20	s.w. by w.				
			S.	−57 40	s.w. by w.				
			N.S.	−57 30	s.w by w.				
26.	−53 52	6 07	Direct.	−58 23	w. by s.	+46	+13	−57 01	Table very steady.
			N.	−57 55	w. by s.				
			S.	−57 40	w. by s.				
			N.S.	−58 03	w. by s.				
27.	−55 08	5 50	Direct.	−58 38	s.s.w. ½ w.	+16	+13	−57 26	Table very unsteady.
			N.	−57 28	s.s.w. ½ w.				
			S.	−57 25	s.s.w. ½ w.				
			N.S.	−58 10	s.s.w. ½ w.				
30.	−60 43	4 00	Direct.	−61 23	s.	−08	+24	−61 06	Table unsteady.
			N.S.	−61 20	s.				
			Direct.	−61 03	s.E. by E.	+22	+24	−60 14 } −59 58	
			N.S.	−60 58	s.E. by E.				
			Direct.	−60 08	N.	+85	+24	−58 35	
			N.S.	−60 40	N.				
31.	−61 05	9 03	Direct.	−61 32	s.E. by s.	00	+13	−61 01	Table steady.
			N.	−61 35	s.E. by s.				
			S.	−61 13	s.E. by s.				
			N.S.	−60 35	s.E. by s.				
Feb. 2.	−61 54	16 23	Direct.	−64 18	E.S.E.	+30	+13	−63 00	Table unsteady.
			N.	−63 30	E.S.E.				
			S.	−63 30	E.S.E.				
			N.S.	−63 33	E.S.E.				
3.	−61 50	19 13	Direct.	−65 13	E.S.E.	+25	+13	−63 55	Table very steady.
			N.	−64 18	E.S.E.				
			S.	−64 28	E.S.E				
			N.S.	−64 13	E.S.E.				
4.	−62 00	20 25	Direct.	−65 33	S.S.E.	−15	+13	−64 55	Table very steady.
			N.	−64 43	S.S.E.				
			S.	−64 35	S.S.E.				
			N.S.	−64 40	S.S.E.				
6.	−64 20	24 05	Direct.	−67 03	S.S.E.	−18	+13	−66 37	Table very steady.
			N.	−66 13	S.S.E.				
			S.	−66 20	S.S.E.				
			N.S.	−66 30	S.S.E.				
7.	−65 34	28 30	Direct.	−67 18	S.S.E. ½ E.	−16	+13	−66 59	Table very steady.
			N.	−67 00	S.S.E. ½ E.				
			S.	−66 40	S.S.E. ½ E.				
			N.S.	−66 45	S.S.E. ½ E.				
9.	−66 30	36 46	Direct.	−69 13	E.	+40	+13	−68 16	Table very steady.
			N.	−69 10	E.				
			S.	−69 03	E.				
			N.S.	−69 08	E.				

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.	Remarks.
1845.	° ′	° ′		° ′		′	′	° ′ ° ′	
Feb. 10.	−66 43	38 49	Direct.	−69 28	S.S.W.				
			N.	−69 08	S.S.W.	−26	+13	−69 22	Table very steady.
			S.	−69 03	S.S.W.				
			N.S.	−68 58	S.S.W.				
11.	−67 35	39 31	Direct.	−71 28	N.E.				
			N.	−71 43	N.E.	+89	+13	−69 49	Table very steady 8 P.M.
			S.	−71 23	N.E.				
12.	−66 45	39 23	Direct.	−70 08	S.S.E.				
			N.	−70 10	S.S.E.	−30	+13	−70 12	Table very unsteady.
			S.	−69 45	S.S.E.				
			N.S.	−69 35	S.S.E.				
13.	−67 00	40 07	Direct.	−70 43	E.N.E.				
			N.	−71 10	E.N.E.	+66	+13	−69 39	Table steady.
			S.	−71 28	E.N.E.				
			N.S.	−70 30	E.N.E.				
16.	−64 52	38 37	Direct.	−68 32	N.N.E.	+85	+32	−66 35*	
			Direct.	−68 53	S. ¾ E.			68 40	Table very unsteady, ship pitching much.
			N.	−68 08	S. ¾ E.	−26	+13	−68 40	
			S.	−68 20	S. ¾ E.				
17.	−64 52	40 12	Direct.	−70 08	N. by W.				
			N.	−70 32	N. by W.	+80	+13	−68 44	Table very unsteady, heavy swell.
			S.	−70 25	N. by W.				
			N.S.	−70 02	N. by W.				
18.	−64 22	40 49	Direct.	−68 13	S. by E.				
			N.	−68 25	S. by E.	−29	+13	−68 40	Table very unsteady.
			S.	−68 35	S. by E.				
19.	−63 49	42 00	Direct.	−70 33	E. by S.				
			N.	−70 03	E. by S.	+28	+13	−69 36	Table very unsteady 6 P.M.
			S.	−70 20	E. by S.				
			N.S.	−70 13	E. by S.				
20.	−63 22	45 35	Direct.	−70 53	S.E. by E. ½ E.				
			S.	−70 25	S.E. by E. ½ E.	+13	+21	−70 03	Table very unsteady.
			N.S.	−70 33	S.E. by E. ½ E.				
21.	−63 36	46 41	Direct.	−70 03	S.S.E.				
			N.	−70 18	S.S.E.	−28	+13	−70 02	Table unsteady.
			S.	−69 35	S.S.E.				
			N.S.	−69 10	S.S.E.				
24.	−62 36	51 40	Direct.	−69 48	E.	+41	+24	−68 39	Taken at 10 A.M., table very unsteady, ship pitching violently.
			N.S.	−69 40	E.			69 13	
			Direct.	−70 28	E.				
			N.	−70 13	E.	+41	+13	−69 46	Taken at 5 P.M.
			S.	−71 20	E.				
25.	−61 25	53 38	Direct.	−71 28	E.S.E.				
			N.	−71 18	E.S.E.	+12	+13	−70 46	Table unsteady.
			S.	−71 00	E.S.E.				
			N.S.	−70 58	E.S.E.				
26.	−61 17	57 28	Direct.	−72 13	S.E. ½ E.				
			N.	−72 43	S.E. ½ E.	−11	+13	−72 01	Table unsteady.
			S.	−71 48	S.E. ½ E.				
			N.S.	−71 28	S.E. ½ E.				
27.	−61 00	64 03	Direct.	−73 28	S.E. ½ S.				
			N.	−73 15	S.E. ½ S.	−21	+13	−73 27	Table steady.
			S.	−73 38	S.E. ½ S.				
			N.S.	−72 55	S.E. ½ S.				
28.	−61 36	70 46	Direct.	−73 43	S.S.E.				
			N.	−73 55	S.S.E.	−38	+13	−74 02	Table unsteady, heavy swell.
			S.	−73 35	S.S.E.				
			N.S.	−73 15	S.S.E.				

* Error, probably in the degree noted; result not included in the mean.

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.	Remarks.
1845.	° ′	° ′		° ′		′	′	° ′ ° ′	
Mar. 1.	−62 10	72 25	Direct.	−74 13	S.S.E.	−38	+13	−74 35	Table steady.
			N.	−74 23	S.S.E.				
			S.	−74 20	S.S.E.				
			N.S.	−73 43	S.S.E.				
2.	−62 40	76 09	Direct.	−74 28	S.	−46	+13	−74 50	Table very steady.
			N.	−74 13	S.				
			S.	−74 23	S.				
			N.S.	−74 03	S.				
3.	−64 20	79 38	Direct.	−75 53	S. by W. ½ W.	−43	+13	−76 34	Table unsteady.
			N.	−76 45	S. by W. ½ W.				
			S.	−76 27	S. by W. ½ W.				
			N.S.	−75 10	S. by W. ½ W.				
5.	−61 38	84 40	Direct.	−76 13	S.E.	−23	+13	−76 27	Table unsteady.
			N.	−76 10	S.E.				
			S.	−76 38	S.E.				
			N.S.	−76 08	S.E.				
6.	−60 42	80 12	Direct.	−77 23	N.E. ½ N.	+82	+13	−75 43	Table unsteady.
			N.	−77 08	N.E. ½ N.				
			S.	−77 23	N.E. ½ N.				
			N.S.	−77 18	N.E. ½ N.				
7.	−61 20	91 09	Direct.	−76 28	S. by E.	−49	+13	−77 23	Table very unsteady, taken at 10 A.M.
			N.	−77 20	S. by E.				
			S.	−77 18	S. by E.				
			N.S.	−76 02	S. by E.			77 35	
	−61 26	91 20	Direct.	−77 18	S.W. by S.	−35	+13	−77 46	Taken at 5 P.M. in consequence of the A.M. observations being unsatisfactory. The aurora was very brilliant all the previous and succeeding nights.
			N.	−77 28	S.W. by S.				
			S.	−77 50	S.W. by S.				
			N.S.	−77 00	S.W. by S.				
8.	−61 14	92 03	Direct.	−79 03	E.	+26	+13	−78 26	Table steady. Table steady, light N.W. swell.
			N.	−79 43	E.				
			S.	−79 05	E.				
			N.S.	−78 30	E.				
9.	−60 35	92 25	Direct.	−78 13	E.	+26	+13	−77 30	Table unsteady.
			N.	−78 25	E.				
			S.	−78 15	E.				
			N.S.	−77 42	E.				
10.	−60 03	95 36	Direct.	−76 27	S.E. ½ S.	−37	+13	−77 35	Table very unsteady.
			N.	−77 30	S.E. ½ S.				
			S.	−77 35	S.E. ½ S.				
11.	−59 52	99 30	Direct.	−80 03	E. ½ S.	+15	+13	−79 21	Table very unsteady, taken at 10 A.M.
			N.	−80 23	E. ½ S.				
			S.	−79 25	E. ½ S.				
			N.S.	−79 23	E. ½ S.			79 36	
	−59 59	99 39	Direct.	−80 28	E. ½ N.	+30	+13	−79 51	Table steady, taken at 6 P.M.
			N.	−81 05	E. ½ N.				
			S.	−80 50	E. ½ N.				
			N.S.	−79 53	E. ½ N.				
13.	−57 35	99 28	Direct.	−79 18	E. by S.	+11	+14	−78 36	Table very unsteady, taken at 6 P.M.
			N.S.	−79 03	E. by S.				
14.	−56 53	101 24	Direct.	−78 33	E. by S.	+12	+13	−78 40	Table very unsteady.
			N.	−79 38	E. by S.				
			S.	−79 22	E. by S.				
			N.S.	−78 48	E. by S.				
15.	−55 52	103 06	Direct.	−79 18	E. by N.	+39	+13	−78 56	Table very unsteady.
			N.	−80 28	E. by N.				
			S.	−80 03	E. by N.				
			N.S.	−79 23	E. by N.				

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.		Remarks.
1845.	° ′	° ′		° ′		′	′	° ′	° ′	
Mar. 16.	−54 48	108 04	Direct.	−79 33	N.E.					
			N.	−80 03	N.E.	+78	+13	−78 09		Table very unsteady.
			S.	−79 25	N.E.					
			N.S.	−79 38	N.E.					
17.	−54 17	108 05	Direct.	−78 23	S.E.					
			N.	−79 38	S.E.	−30	+13	−79 16		
			S.	−78 55	S.E.				−78 49	Table very unsteady, ship pitching violently.
			Direct.	−78 38	E.					
			N.	−78 58	E.	+24	+13	−78 21		
			S.	−79 18	E.					
18.	−53 00	110 08	Direct.	−79 28	N.N.E. ½ E.					
			N.	−78 55	N.N.E. ½ E.	+82	+13	−77 28		Table very unsteady.
			S.	−78 48	N.N.E. ½ E.					
			N.S.	−79 00	N.N.E. ½ E.					
19.	−51 20	111 23	Direct.	−78 08	N.N.E. ½ E.					
			S.	−78 48	N.N.E. ½ E.	+85	+21	−76 41		Table very unsteady, heavy swell.
			N.S.	−78 25	N.N.E. ½ E.					
20.	−49 01	111 47	Direct.	−77 38	N.E. by N.					
			N.	−78 38	N.E. by N.	+82	+13	−76 30		Table unsteady, very heavy swell.
			S.	−78 30	N.E. by N.					
			N.S.	−77 33	N.E. by N.					
22.	−47 21	115 15	Direct.	−76 43	E.N.E.					
			N.	−77 13	E.N.E.	+58	+13	−75 31		Table steady, light swell.
			S.	−77 03	E.N.E.					
			N.S.	−75 48	E.N.E.					
25.	−43 20	116 52	Direct.	−73 23	N. ½ E.					
			N.	−75 45	N. ½ E.	+76	+13	−72 45		Table very unsteady, heavy swell from W.
			S.	−74 48	N. ½ E.					
			N.S.	−72 58	N. ½ E.					
26.	−41 18	116 09	Direct.	−71 33	N. by W.					
			N.	−71 33	N. by W.	+80	+13	−70 11		Table unsteady, light swell.
			S.	−72 15	N. by W.					
			N.S.	−71 33	N. by W.					
27.	−38 52	116 15	Direct.	−70 23	N. by W.					
			N.	−70 45	N. by W.	+80	+13	−68 49		Table steady.
			S.	−70 50	N. by W.					
			N.S.	−69 28	N. by W.					
28.	−37 03	116 57	Direct.	−68 33	N. by E.					
			N.	−68 48	N. by E.	+83	+13	−66 46		Table very steady, nearly calm.
			S.	−68 13	N. by E.					
			N.S.	−67 53	N. by E.					
29.	−36 12	−116 50	Direct.	−67 30	N.N.E.					
			N.	−67 13	N.N.E.	+84	+13	−65 28		Table unsteady.
			S.	−66 55	N.N.E.					
			N.S.	−66 43	N.N.E.					
30.	−35 18	117 07	Direct.	−67 28	N.E. ½ E.					
			N.	−68 00	N.E. ½ E.	+86	+13	−65 48		Table unsteady.
			S.	−67 48	N.E. ½ E.					
			N.S.	−66 30	N.E. ½ E.					
April 7.	−35 02	117 56	Direct.	−65 28	Observed on shore.					
	King George's Sound.		N.	−65 36		......	+13	−65 11		
			S.	−65 30						
			N.S.	−65 03					−65 11	The observations were made at the same place that was used by Captains Flinders and Fitzroy.
11.	King George's Sound.		Direct.	−65 28	Observed on shore.					
			N.	−65 28		......	+13	−65 11		
			S.	−65 31						
			N.S.	−65 09						

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.		Remarks.
1845.	° ′	° ′		° ′		′	′	° ′	° ′	
April 19.	At anchor in the Sound.		Direct.	−65 02	S.S.W.	−16	+24	−64 46		
			N.S.	−64 46	S.S.W.					
		To obtain corrections for the ship's attraction.	Direct.	−65 49	S.W.	+01	+24	−65 12		
			N.S.	−65 25	S.W.					
			Direct.	−65 54	W.S.W.	+23	+24	−64 57		
			N.S.	−65 33	W.S.W.					
			Direct.	−66 02	W.	+46	+24	−64 41		
			N.S.	−65 39	W.					
			Direct.	−66 23	W.N.W.	+70	+24	−64 39		
			N.S.	−66 03	W.N.W.					
			Direct.	−66 35	N.W.	+92	+24	−64 30		
			N.S.	−66 16	N.W.					
			Direct.	−66 50	N.N.W.	+84	+24	−64 52		
			N.S.	−66 29	N.N.W.					
			Direct.	−66 29	N.	+84	+24	−64 34		
			N.S.	−66 14	N.				−64 51	The table was very steady during these observations.
			Direct.	−66 48	N.N.E.	+83	+24	−64 50		
			N.S.	−66 26	N.N.E.					
			Direct.	−66 35	N.E.	+92	+24	−64 26		
			N.S.	−66 09	N.E.					
			Direct.	−66 27	E.N.E.	+70	+24	−64 40		
			N.S.	−66 00	E.N.E.					
			Direct.	−66 37	E.	+46	+24	−65 19		
			N.S.	−66 21	E.					
			Direct.	−66 16	E.S.E.	+23	+24	−65 11		
			N.S.	−65 40	E.S.E.					
			Direct.	−65 52	S.E.	+01	+24	−65 11		
			N.S.	−65 19	S.E.					
			Direct.	−65 13	S.S.E.	−16	+24	−64 58		
			N.S.	−64 58	S.S.E.					
			Direct.	−65 11	S.	−21	+24	−64 57		
			N.S.	−64 46	S.					
23.	−35 36	114 44	Direct.	−66 53	N.W.	+92	+13	−65 28		Table unsteady.
			N.	−67 45	N.W.					
			S.	−67 40	N.W.					
			N.S.	−66 33	N.W.					
24.	−34 16	113 01	Direct.	−66 33	N.W. by N.	+88	+13	−64 44		Table unsteady.
			N.	−66 28	N.W. by N.					
			S.	−66 25	N.W. by N.					
			N.S.	−66 15	N.W. by N.					
25.	−32 32	111 36	Direct.	−63 48	N.W. by N.	+88	+13	−62 14		Table unsteady.
			N.	−64 25	N.W. by N.					
			S.	−63 55	N.W. by N.					
			N.S.	−63 33	N.W. by N.					
27.	−29 20	106 55	Direct.	−60 58	W.N.W.	+72	+13	−59 19		Table steady.
			N.	−61 05	W.N.W.					
			S.	−60 20	W.N.W.					
			N.S.	−60 33	W.N.W.					
28.	−27 47	106 36	Direct.	−58 28	N. by W. ½ W.	+76	+13	−57 17		Table very unsteady, heavy swell.
			N.	−58 10	N. by W. ½ W.					
			S.	−58 25	N. by W. ½ W.					
			N.S.	−60 00	N. by W. ½ W.					
29.	−26 00	105 11	Direct.	−56 38	N.W.	+88	+13	−55 09		Table very unsteady, very heavy swell.
			N.	−56 48	N.W.					
			S.	−57 08	N.W.					
			N.S.	−56 45	N.W.					

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.		Remarks.
1845.	° ′	° ′		° ′		′	′	° ′	° ′	
May 1.	−24 00	99 23	Direct.	−55 18	W.					
			N.	−55 55	W.	+51	+13	−54 28		
			S.	−56 13	W.					Table very unsteady, considerable motion.
			N.S.	−54 43	W.					
2.	−24 01	97 30	Direct.	−55 03	W.					
			N.	−55 20	W.	+51	+13	−54 03		Table steady.
			S.	−55 28	W.					
			N.S.	−54 35	W.					
3.	−24 00	96 06	Direct.	−55 18	W. ½ N.					
			N.	−55 13	W. ½ N.	+56	+13	−54 16		Table steady.
			S.	−55 30	W. ½ N.					
			N.S.	−55 38	W. ½ N.					
6.	−22 47	91 00	Direct.	−54 28	N.W.					
			N.	−54 40	N.W.	+87	+13	−52 49		Table very unsteady, heavy swell from W.
			S.	−54 28	N.W.					
			N.S.	−54 18	N.W.					
7.	−21 50	89 44	Direct.	−53 28	N.W.					
			N.	−53 53	N.W.	+86	+13	−52 17		Table very unsteady, heavy W. swell.
			S.	−54 08	N.W.					
			N.S.	−54 13	N.W.					
8.	−20 46	87 59	Direct.	−52 28	N.W. by W.					
			N.	−53 03	N.W. by W.	+82	+13	−51 06		
			S.	−52 58	N.W. by W.					
			N.S.	−52 13	N.W. by W.				−50 57	Table steady. Observer Mr. Burdon, R.N.
			Direct.	−52 13	N.W. by W.					
			N.	−52 33	N.W. by W.	+82	+13	−50 48		
			S.	−52 30	N.W. by W.					Table steady.
			N.S.	−52 15	N.W. by W.					
9.	−20 38	85 26	Direct.	−52 03	W. ½ N.					
			N.	−52 35	W. ½ N.	+56	+13	−51 14		Table very unsteady, heavy swell.
			S.	−52 15	W. ½ N.					
			N.S.	−52 38	W. ½ N.					
10.	−20 26	82 22	Direct.	−52 43	W. ½ N.					
			N.	−53 00	W. ½ N.	+56	+13	−51 40		Table very unsteady.
			S.	−52 58	W. ½ N.					
			N.S.	−52 33	W. ½ N.				−51 39	
			Direct.	−52 49	W. ¼ N.					
			N.	−52 47	W. ¼ N.	+53	+13	−51 37		Table very unsteady. Observer Mr. Burdon, R.N.
			S.	−52 25	W. ¼ N.					
			N.S.	−52 50	W. ¼ N.					
11.	−20 36	79 22	Direct.	−52 43	W. ¼ N.					
			N.	−52 45	W. ¼ N.	+53	+13	−51 55		Table very unsteady. Observer Mr. Burdon, R.N.
			S.	−53 05	W. ¼ N.					
			N.S.	−53 30	W. ¼ N.					
			Direct.	−52 38	W. ¼ N.					
			N.	−52 40	W. ¼ N.	+53	+13	−51 44		Table unsteady.
			S.	−53 08	W. ¼ N.					
			N.S.	−52 53	W. ¼ N.					
12.	−20 44	78 31	Direct.	−54 08	W.	+51	+24	−52 47		
			N.S.	−53 55	W.					
			Direct.	−53 38	W.N.W.	+72	+24	−51 55		
			N.S.	−53 23	W.N.W.					
			Direct.	−53 23	N.W.	+86	+24	−51 37		
			N.S.	−53 30	N.W.					
			Direct.	−52 53	N.N.W.	+68	+24	−51 20		
			N.S.	−52 50	N.N.W.					
			Direct.	−52 43	N.	+70	+32	−51 01	−52 03	

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.		Remarks.
1845. May 12.	−20° 44′	78° 31′	Direct.	−53° 48′	N.N.E.	+68′	+24′	−51° 54′	−52° 03′	To obtain corrections for the ship's attraction. Calm, table very unsteady, considerable rolling motion.
			N.S.	−53 03	N.N.E.					
			Direct.	−52 48	S.	+15	+24	−52 01		
			N.S.	−52 33	S.					
			Direct.	−53 48	S.S.W.	+19	+24	−52 46		
			N.S.	−53 10	S.S.W.					
			Direct.	−53 43	S.W.	+30	+24	−52 29		
			N.S.	−53 03	S.W.					
			Direct.	−53 48	W.S.W.	+44	+24	−52 35		
			N.S.	−53 38	W.S.W.					
13.	−20 39	77 43	Direct.	−53 48	W.	+51	+24	−52 42	−51 59	
			N.S.	−54 05	W.					
			Direct.	−53 28	N.W.	+86	+24	−51 30		
			N.S.	−53 13	N.W.					
			Direct.	−52 58	N.	+70	+24	−51 18		
			N.S.	−52 45	N.					
			Direct.	−53 23	N.E.	+86	+24	−51 24		
			N.S.	−53 05	N.E.					
			Direct.	−53 53	E.	+51	+24	−52 27		
			N.S.	−53 30	E.					
			Direct.	−53 48	S.E.	+30	+24	−52 34		
			N.S.	−53 08	S.E.					
14.	−20 29	76 22	Direct.	−53 08	W. ½ N.	+56	+13	−52 13	−52 20	Table very unsteady.
			N.	−53 00	W. ½ N.					
			S.	−53 35	W. ½ N.					
			N.S.	−53 43	W. ½ N.					
			Direct.	−53 38	W. ½ N.	+56	+13	−52 27		Table very unsteady. Observer Mr. BURDON, R.N.
			N.	−53 48	W. ½ N.					
			S.	−53 50	W. ½ N.					
			N.S.	−53 08	W. ½ N.					
16.	−20 28	70 46	Direct.	−54 08	W. ¼ N.	+53	+13	−52 51		Table steady.
			N.	−53 48	W. ¼ N.					
			S.	−53 53	W. ¼ N.					
			N.S.	−53 58	W. ¼ N.					
18.	−21 06	68 12	Direct.	−54 43	W.S.W.	+44	+13	−53 10		Table very unsteady.
			N.	−53 45	W.S.W.					
			S.	−54 05	W.S.W.					
			N.S.	−53 53	W.S.W.					
19.	−21 11	67 54	Direct.	−54 28	N.W. by N.	+77	+13	−52 54	−53 02	Table steady, nearly calm. 2 P.M.
			N.	−54 35	N.W. by N.					
			S.	−54 23	N.W. by N.					
			N.S.	−54 08	N.W. by N.					
			Direct.	−54 53	N.W. by N.	+77	+13	−53 10		Table steady. Observer Mr. BURDON, R.N.
			N.	−54 45	N.W. by N.					
			S.	−54 38	N.W. by N.					
			N.S.	−54 23	N.W. by N.					
20.	−21 12	67 29	Direct.	−55 03	W. by N.	+63	+13	−53 46	−53 39	Table steady.
			N.	−54 58	W. by N.					
			S.	−55 08	W. by N.					
			N.S.	−54 58	W. by N.					
			Direct.	−54 58	W. by N.	+63	+13	−53 32		Table steady. Observer Mr. BURDON, R.N.
			N.	−54 45	W. by N.					
			S.	−55 00	W. by N.					
			N.S.	−54 28	W. by N.					

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections.		Corrected Inclination.	Remarks.
						Ship's attraction.	Index.		
1845.	° ′	° ′		° ′		′	′	° ′	
May 21.	−21 02	66 02	Direct.	−55 28	w. by N.	+63	+13	−54 03	Table steady.
			N.	−55 13	w. by N.				
			S.	−55 23	w. by N.				
			N.S.	−55 13	w. by N.				
23.	−20 31	59 42	Direct.	−55 28	w. by N.	+63	+13	−53 59	Table very unsteady.
			N.	−55 00	w. by N.				
			S.	−55 23	w. by N.				
			N.S.	−55 07	w. by N.				
27.	−20 09	57 31	Direct.	−54 27	Observed on shore.	......	+13	−54 14	Observed by Lieut. MOORE, R.N.
	Port Louis,		N.	−54 22					
	Mauritius.		S.	−54 59					
			N.S.	−54 01					
30.	−21 44	53 34	Direct.	−55 33	w.s.w. ½ w.	+38	+13	−54 38	Table very unsteady, heavy swell.
			N.	−55 20	w.s.w. ½ w.				
			S.	−55 28	w.s.w. ½ w.				
			N.S.	−55 35	w.s.w. ½ w.				
June 2.	−26 25	49 12	Direct.	−60 33	N.W. by W.	+80	+13	−58 36	Table very unsteady, heavy swell.
			N.	−59 50	N.W. by W.				
			S.	−60 05	N.W. by W.				
			N.S.	−60 10	N.W. by W.				
4.	−27 12	46 09	Direct.	−59 48	w. by s.	+46	+13	−58 44	Table unsteady, fresh breeze.
			N.	−59 18	w. by s.				
			S.	−59 48	w. by s.				
			N.S.	−59 58	w. by s.				
5.	−28 24	43 00	Direct.	−59 43	w.	+51	+13	−58 52	Table very unsteady, fresh breeze.
			N.	−59 53	w.				
			S.	−60 18	w.				
			N.S.	−59 48	w.				
6.	−28 44	42 01	Direct.	−60 33	W.N.W.	+72	+13	−59 01	Table very unsteady, fresh breeze.
			N.	−60 25	W.N.W.				
			S.	−60 23	W.N.W.				
			N.S.	−60 23	W.N.W.				
7.	−28 35	40 24	Direct.	−59 58	w. ½ N.	+56	+13	−58 54	Table very unsteady.
			N.	−59 56	w. ½ N.				
			S.	−60 28	w. ½ N.				
			N.S.	−59 50	w. ½ N.				
8.	−28 57	37 52	Direct.	−60 38	w.	+51	+13	−59 08	Table steady, nearly a calm.
			N.	−59 45	w.				
			S.	−60 25	w.				
			N.S.	−60 02	w.				
12.	−30 33	33 19	Direct.	−59 03	W.N.W.	+72	+13	−57 19	Table unsteady.
			N.	−58 30	W.N.W.				
			S.	−58 43	W.N.W.				
			N.S.	−58 38	W.N.W.				
13.	−31 06	31 34	Direct.	−58 33	w. by s. ½ s.	+42	+13	−57 28	Table steady, nearly a calm.
			N.	−58 20	w. by s. ½ s.				
			S.	−58 35	w. by s. ½ s.				
			N.S.	−58 05	w. by s. ½ s.				
14.	−33 01	29 36	Direct.	−58 38	w.	+51	+13	−57 34	Table unsteady, fresh breeze.
			N.	−58 25	w.				
			S.	−59 08	w.				
			N.S.	−58 20	w.				
15.	−34 31	27 04	Direct.	−58 23	w. ½ N.	+56	+13	−57 06	Table very unsteady, long heavy swell.
			N.	−58 08	w. ½ N.				
			S.	−58 45	w. ½ N.				
			N.S.	−57 45	w. ½ N.				

Observations of Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.		Remarks.
1835.	° ′	° ′		° ′		′	′	° ′	° ′	
June 16.	−35 46	23 35	Direct.	−57 38	w. by N.					
			N.	−57 23	w. by N.	+63	+13	−56 08		Table steady, fresh breeze.
			S.	−57 15	w. by N.					
			N.S.	−57 20	w. by N.					
17.	−35 36	21 40	Direct.	−56 48	w. by N.					
			N.	−56 43	w. by N.	+72	+13	−55 18		Table steady.
			S.	−56 40	w. by N.					
			N.S.	−56 40	w. by N.					
18.	−35 07	20 46	Direct.	−56 18	w. by S.					
			N.	−55 45	w. by S.	+46	+13	+55 08		Table steady.
			S.	−56 08	w. by S.					
			N.S.	−56 18	w. by S.					
23.	−34 12	18 26	Direct.	−54 17	Observed on shore.	.....	+24	−53 37	−53 37	Observed in the dockyard at Simon's Bay.
			N.S.	−53 45						
30.	−33 56	18 29	Direct.	−54 12						
			N.	−53 13	Observed on shore.	......	+13	−53 32		Monthly mean dip by Robinson's needles
			S.	−53 46						
	Magnetic Observatory, Cape of Good Hope.		N.S.	−53 51					−53 34	
July 2.			Direct.	−54 08						A 1 53 24
			N.	−53 15	Observed on shore.	......	+13	−53 30		A 2 53 24
			S.	−53 46						Mean 53 24
			N.S.	−53 44						
June 23.	−34 12	18 26	Direct.	−53 59	S.	+09	+24	−53 20		
	At anchor in Simon's Bay, Cape of Good Hope.		N.S.	−53 46	S.					
			Direct.	−53 50	S.S.W.	+14	+24	−52 56		
			N.S.	−53 17	S.S.W.					
			Direct.	−54 25	S.W.	+26	+24	−53 20		
			N.S.	−53 54	S.W.					
			Direct.	−55 04	W.S.W.	+41	+24	−53 50		
			N.S.	−54 46	W.S.W.					
			Direct.	−55 18	W.	+51	+24	−53 54		
			N.S.	−55 01	W.					
			Direct.	−55 34	W.N.W.	+72	+24	−53 36		
			N.S.	−54 49	W.N.W.					
			Direct.	−55 30	N.W.	+88	+24	−53 28		
			N.S.	−55 10	N.W.					
			Direct.	−55 07	N.N.W.	+71	+24	−53 25		
			N.S.	−54 52	N.N.W.				−53 28	To obtain corrections for the ship's attraction.
			Direct.	−54 36	N.	+75	+24	−52 46		
			N.S.	−54 14	N.					
			Direct.	−55 10	N.N.E.	+71	+24	−53 14		
			N.S.	−54 28	N.N.E.					
			Direct.	−55 16	N.E.	+87	+24	−53 10		
			N.S.	−54 46	N.E.					
			Direct.	−55 34	E.N.E.	+72	+24	−53 41		
			N.S.	−54 59	E.N.E.					
			Direct.	−55 22	E.	+51	+24	−53 55		
			N.S.	−54 58	E.					
			Direct.	−55 05	E.S.E.	+41	+24	−53 43		
			N.S.	−54 31	E.S.E.					
			Direct.	−54 24	S.E.	+26	+24	−53 26		
			N.S.	−54 07	S.E.					
			Direct.	−54 39	S.S.E.	+14	+24	−53 37		
			N.S.	−53 50	S.S.E.					

Observations of the Magnetic Force made on board Her Majesty's hired Bark "Pagoda," from the 10th of January 1845 to the 20th of June 1845, with Needle A. of C. 9. one hour after Noon.

Observer, Lieut. T. E. L. Moore, R.N.

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected intensity.		Remarks.
1845. Jan. 10.	−34° 46′	17° 46′	Def. N.	48° 19′	64°	w. by n.	0·988	−·008	·000	0·980		
			Def. S.	49 15	64	w. by n.	0·975	−·008	·000	0·967		
			Def. N.S.	67 36	64	w. by n.	0·988	−·008	−·001	0·979	·985	Fresh breezes, a head swell.
			Def. N.	46 11	64	w. by n.	1·001	−·008	·000	0·993		
			Def. S.	45 42	64	w. by n.	1·014	−·008	·000	1·006		
11.	−35 09	15 09	Def. N.	49 23	68	n.w. by w.	0·960	+·002	−·001	0·961		
			Def. S.	49 22	68	n.w. by w.	0·973	+·002	−·001	0·974		
			Def. N.S.	68 57	68	n.w. by w.	0·956	+·002	−·002	0·956		
			Mag. N.	47 00	66	n.w. by w.	0·969	+·002	−·001	0·970	·968	A little motion.
			Mag. S.	46 54	66	n.w. by w.	0·966	+·002	−·001	0·967		
			wt. 1 gr.	19 56	66	n.w. by w.	0·922	+·002	+·001	0·925*		
			wt. 2 grs.	42 14	66	n.w. by w.	0·978	+·002	+·001	0·981		
12.	−35 17	14 00	Def. N.	49 55	78	w. ½ s.	0·950	−·016	−·001	0·933		
			Def. S.	50 42	78	w. ½ s.	0·929	−·016	−·001	0·912		
			Def. N.S.	69 27	78	w. ½ s.	0·944	−·016	−·005	0·923	·923	A little motion.
			Mag. N.	48 03	78	w. ½ s.	0·930	−·016	−·001	0·913		
			Mag. S.	47 16	78	w. ½ s.	0·952	−·016	−·001	0·935		
13.	−35 24	13 23	Mag. N.	48 59	72	s.w. ½ s.	0·971	−·033	−·001	0·937		
			Mag. S.	50 00	72	s.w. ½ s.	0·952	−·033	−·001	0·918		
			Mag. N.S.	68 30	72	s.w. ½ s.	0·965	−·033	−·003	0·929		
			Mag. N.	47 13	72	s.w. ½ s.	0·961	−·033	−·001	0·927		
			Mag. S.	46 58	72	s.w. ½ s.	0·966	−·033	−·001	0·932	·933	A little motion.
			wt. 1 gr.	19 17	72	s.w. ½ s.	0·952	−·033	+·001	0·920*		
			wt. 1½ gr.	30 42	76	s.w. ½ s.	0·981	−·033	+·001	0·949		
			wt. 2 grs.	42 46	76	s.w. ½ s.	0·968	−·033	+·001	0·936		
15.	−38 42	14 27	Def. N.	47 18	64	s. by w. ½ w.	1·019	−·038	·000	0·981		
			Def. S.	48 25	64	s. by w. ½ w.	1·005	−·038	·000	0·967		
			Def. N.S.	66 52	64	s. by w. ½ w.	1·006	−·038	−·001	0·967	·978	Table unsteady, a head swell.
			Mag. N.	45 49	64	s. by w. ½ w.	1·018	−·038	·000	0·980		
			Mag. S.	45 21	64	s. by w. ½ w.	1·031	−·038	·000	0·993		
16.	−39 10	14 38	Def. N.	48 27	70	s.w.by w.½w.	0·984	−·024	−·001	0·959		
			Def. S.	48 53	70	s.w.by w.½w.	0·988	−·024	−·001	0·963		
			Def. N.S.	67 27	70	s.w.by w.½w.	0·992	−·024	−·003	0·965	·964	Table very unsteady.
			Mag. N.	46 37	70	s.w.by w.½w.	0·985	−·024	−·001	0·960		
			Mag. S.	46 04	70	s.w.by w.½w.	0·997	−·024	−·001	0·972		
17.	−40 41	14 16	Mag. N.	47 52	68	w.s.w.	1·000	−·024	−·001	0·975		
			Mag. S.	48 16	68	w.s.w.	1·009	−·024	−·001	0·984	·984	A heavy head swell, much motion.
			Mag. N.S.	66 22	68	w.s.w.	1·020	−·024	−·002	0·994		
21.	−50 21	10 31	Mag. N.	45 42	45	s.w.	1·074	−·032	+·001	1·043		
			Mag. S.	46 14	45	s.w.	1·076	−·032	+·001	1·045		
			Mag. N.S.	63 54	45	s.w.	1·086	−·032	+·004	1·058	1·051	Moderate breezes, a little motion.
			Mag. N.	44 19	45	s.w.	1·082	−·032	+·001	1·051		
			Mag. S.	44 07	45	s.w.	1·090	−·032	+·001	1·059		
23.	−50 48	10 18	Mag. N.	44 45	43	s.w.by w.½w.	1·110	−·024	+·001	1·087		
			Mag. S.	44 54	43	s.w.by w.½w.	1·120	−·024	+·001	1·097		
			Mag. N.S.	62 39	43	s.w.by w.½w.	1·125	−·024	+·005	1·106	1·093	
			Mag. N.	43 44	42	s.w.by w.½w.	1·108	−·024	+·001	1·085		
			Mag. S.	43 43	42	s.w.by w.½w.	1·112	−·024	+·001	1·089		
24.	−51 44	9 36	Mag. N.	44 15	49	s.w. by w.	1·128	−·024	+·001	1·105		
	−51 56	9 30	Mag. N.S.	62 19	50	s.w.by w.½w.	1·136	−·024	+·003	1·115	1·109	Moderate breezes, table steady. P.M. A head swell, much motion.
			wt. 1 gr.	17 12	50	s.w.by w.½w.	1·063	−·024	−·001	1·038*		
			wt. 2 grs.	35 29	50	s.w.by w.½w.	1·132	−·024	−·001	1·107		

* Omitted in mean.

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845. Jan. 25.	−53° 21′	7° 32′	Def. N.	43° 49′	41°	s.w.by w.$\frac{1}{2}$w.	1·145	−·024	+·001	1·122		
			Def. S.	43 59	41	s.w.by w.$\frac{1}{2}$w.	1·152	−·024	+·001	1·129		
			Def. N.S.	61 56	41	s.w.by w.$\frac{1}{2}$w.	1·147	−·024	+·006	1·129	1·134	Table steady; passing through streams of ice.
			Mag. N.	42 39	39	s.w.by w.$\frac{1}{2}$w.	1·159	−·024	+·002	1·137		
			Mag. S.	42 33	39	s.w.by w.$\frac{1}{2}$w.	1·174	−·024	+·002	1·152		
26.	−54 02	6 02	Def. N.	43 43	42	w. by n.	1·148	−·012	+·001	1·137		
			Def. S.	44 14	42	w. by n.	1·145	−·012	+·001	1·134		
			Def. N.S.	62 09	42	w. by n.	1·142	−·012	+·006	1·136		
			Mag. N.	43 00	40	w. by n.	1·142	−·012	+·002	1·132	1·141	Very steady, small pieces of loose ice about the ship.
			Mag. S.	42 44	40	w. by n.	1·164	−·012	+·002	1·154		
			wt. 1 gr.	16 40	40	w. by n.	1·096	−·012	+·002	1·086*		
			wt. 2 grs.	34 23	40	w. by n.	1·164	−·012	+·002	1·154		
27.	−55 18	5 55	Def. N.	42 50	39	s.s.w. $\frac{1}{2}$ w.	1·184	−·042	+·001	1·143	1·143	Ship pitching heavily, fresh breezes.
31.	−61 14	9 07	Def. N.	39 38	37	s.s.e.	1·324	−·042	+·002	1·284		
			Def. S.	40 08	37	s.s.e.	1·320	−·042	+·002	1·280		
			Def. N.S.	57 04	37	s.s.e.	1·331	−·042	+·008	1·297	1·288	Table steady, heavy snow, passing various icebergs.
			Mag. N.	39 45	37	s.s.e.	1·310	−·042	+·003	1·271		
			Mag. S.	39 30	37	s.s.e.	1·349	−·042	+·003	1·310		
Feb. 1.	−62 06	12 52	Def. N.	38 10	37	s.e. by s.	1·398	−·040	+·002	1·360	1·349	Much motion, table unsteady.
			Def. S.	38 58	37	s.e. by s.	1·376	−·040	+·002	1·338		
2.	−61 56	16 36	Def. N.	39 17	37	s.e. $\frac{1}{2}$ e.	1·341	−·036	+·002	1·307		
			Def. S.	39 21	36	s.e. $\frac{1}{2}$ e.	1·357	−·036	+·002	1·323		
			Def. N.S.	56 28	36	s.e. $\frac{1}{2}$ e.	1·358	−·036	+·009	1·331	1·321	Heavy snow, a head sea, ship pitching violently.
			Mag. N.	39 21	36	s.e. $\frac{1}{2}$ e.	1·339	−·036	+·003	1·306		
			Mag. S.	39 08	35	s.e. $\frac{1}{2}$ e.	1·372	−·036	+·003	1·339		
4.	−63 00	20 40	Def. N.	38 17	39	s. $\frac{1}{2}$ e.	1·391	−·051	+·001	1·341		
			Def. S.	38 35	39	s. $\frac{1}{2}$ e.	1·395	−·051	+·001	1·345		
			Def. N.S.	56 04	39	s. $\frac{1}{2}$ e.	1·376	−·051	+·008	1·333		
			Mag. N.	38 17	39	s. $\frac{1}{2}$ e.	1·406	−·051	+·002	1·357	1·347	Water very clear from ice, a little motion.
			Mag. S.	38 35	39	s. $\frac{1}{2}$ e.	1·405	−·051	+·002	1·356		Vibration great.
			wt. 1 gr.	13 26	39	s. $\frac{1}{2}$ e.	1·353	−·051	−·002	1·300*		
			wt. 2 grs.	27 58	39	s. $\frac{1}{2}$ e.	1·402	−·051	−·002	1·349		
5.	−63 19	21 48	Def. N.	38 36	37	s.s.e.	1·376	−·046	+·002	1·332		
			Def. S.	38 24	37	s.s.e.	1·405	−·046	+·002	1·361		
			Def. N.S.	55 38	37	s.s.e.	1·397	−·046	+·009	1·360		
			Mag. N.	38 27	36	s.s.e.	1·396	−·046	+·003	1·353	1·362	A heavy swell from S.E., light breezes, table steady.
			Mag. S.	38 38	36	s.s.e.	1·407	−·046	+·003	1·364		
			wt. 1 gr.	13 51	36	s.s.e.	1·313	−·046	−·003	1·264*		
			wt. 2 grs.	26 57	34	s.s.e.	1·450	−·046	−·003	1·401		
6.	−64 25	24 18	Def. N.	37 17	39	s.s.e. $\frac{1}{2}$ e.	1·447	−·045	+·001	1·403		
			Def. S.	37 48	39	s.s.e. $\frac{1}{2}$ e.	1·436	−·045	+·001	1·392	1·398	Water perfectly smooth, very steady.
			Def. N.S.	54 51	39	s.s.e. $\frac{1}{2}$ e.	1·436	−·045	+·008	1·399		
7.	−65 39	28 48	Def. N.	36 34	41	s. by e. $\frac{1}{2}$ e.	1·487	−·051	+·001	1·437		
			Def. S.	37 11	41	s. by e. $\frac{1}{2}$ e.	1·472	−·051	+·001	1·422		
			Def. N.S.	54 15	41	s. by e. $\frac{1}{2}$ e.	1·466	−·051	+·008	1·423		
			Mag. N.	37 00	41	s. by e. $\frac{1}{2}$ e.	1·499	−·051	+·002	1·450	1·432	Table steady, water smooth, no ice in sight.
			Mag. S.	37 20	41	s. by e. $\frac{1}{2}$ e.	1·487	−·051	+·002	1·438		
			wt. 1 gr.	13 03	39	s.s.e.	1·392	−·050	−·002	1·340*		
			wt. 2 grs.	26 28	39	s.s.e.	1·475	−·050	−·002	1·423		
8.	−66 27	30 45	Def. N.	36 27	34	s.e. by e.	1·494	−·042	+·002	1·454		
			Def. S.	36 58	34	s.e. by e.	1·483	−·042	+·002	1·443		
			Def. N.S.	54 05	33	s.e. by e.	1·474	−·042	+·011	1·443	1·448	Fresh breeze, table unsteady.
			Mag. N.	37 00	30	s.e. by e.	1·499	−·042	+·004	1·461		
			Mag. S.	37 32	30	s.e. by e.	1·475	−·042	+·004	1·437		

* Omitted in mean.

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845. Feb. 9.	−66° 36′	36° 50′	Def. N.	36° 06′	39°	S.E. by E.	1·514	−·042	+·001	1·473		
			Def. S.	36 43	39	S.E. by E.	1·508	−·042	+·001	1·467		
			Def. N.S.	53 41	36	S.E. by E.	1·505	−·042	+·010	1·473	1·470	Light breeze, very steady, water smooth.
			Mag. N.	36 55	35	S.E. by E.	1·505	−·042	+·003	1·466		
			Mag. S.	36 59	34	S.E. by E.	1·509	−·042	+·003	1·470		
10.	−67 11	38 51	Def. N.	35 39	34	S. by W.	1·540	−·050	+·002	1·492		
			Def. S.	36 31	34	S. by W.	1·509	−·050	+·002	1·461		
			Def. N.S.	52 45	34	S. by W.	1·549	−·050	+·009	1·508	1·483	Steady, water very smooth.
			Mag. N.	36 27	34	S. by W.	1·540	−·050	+·003	1·493		
			Mag. S.	37 02	34	S. by W.	1·509	−·050	+·003	1·462		
11.	−67 39	40 28	Def. N.	36 10	35	N.E.	1·510	−·016	+·002	1·496	1·496	Sailing along a pack of ice, unsteady.
12.	−67 18	40 22	Def. N.	35 30	32	S. ½ E.	1·548	−·050	+·003	1·501		
			Def. S.	36 07	32	S. ½ E.	1·533	−·050	+·003	1·486		
			Def. N.S.	53 16	32	S. ½ E.	1·520	−·050	+·013	1·483	1·496	Fresh breeze, table unsteady.
			Mag. N.	36 37	32	S. ½ E.	1·529	−·050	+·004	1·483		
			Mag. S.	36 03	32	S. ½ E.	1·575	−·050	+·004	1·529		
13.	−66 55	14 16	Def. N.	36 00	34	E.N.E.	1·519	−·025	+·002	1·496		
			Def. S.	36 37	34	E.N.E.	1·504	−·025	+·002	1·481		
			Def. N.S.	53 29	33	E.N.E.	1·506	−·025	+·011	1·492	1·490	Swell from E., table unsteady.
			Mag. N.	36 43	33	E.N.E.	1·521	−·025	+·004	1·500		
			Mag. S.	37 06	33	E.N.E.	1·503	−·025	+·004	1·482		
14.	−66 24	40 01	Def. N.	36 18	34	N.E. by N.	1·502	−·016	+·002	1·488	1·494	Table unsteady, very squally.
			Def. S.	36 24	34	N.E. by N.	1·515	−·016	+·002	1·501		
16.	−64 52	38 37	Def. N.	35 59	41	S. by E.	1·520	−·050	+·001	1·471		
			Def. S.	36 56	41	S. by E.	1·487	−·050	+·001	1·438		
			Def. N.S.	53 48	41	S. by E.	1·490	−·050	+·008	1·448	1·450	Thick weather, a heavy swell, unsteady.
			Mag. N.	37 07	40	S. by E.	1·493	−·050	+·003	1·446		
			Mag. S.	37 15	40	S. by E.	1·492	−·050	+·003	1·445		
17.	−66 43	40 12	Def. N.	36 34	36	N.	1·487	−·018	+·002	1·471		
			Def. S.	37 08	36	N.	1·475	−·018	+·002	1·459		
			Def. N.S.	53 18	38	N.	1·518	−·018	+·010	1·510	1·482	Calm, a heavy sea, not steady.
			Mag. N.	36 53	38	N.	1·505	−·018	+·003	1·490		
			Mag. S.	37 13	37	N.	1·495	−·018	+·003	1·480		
19.	−64 05	41 09	Def. N.	36 35	37	E. by S.	1·486	−·035	+·002	1·453	1·453	Very unsteady, a swell from N.
20.	−63 19	45 52	Def. N.	36 12	45	S.E. by E. ½ E.	1·507	−·040	+·001	1·468		
			Def. S.	37 10	46	S.E. by E. ½ E.	1·474	−·040	+·001	1·435		
			Def. N.S.	53 40	46	S.E. by E. ½ E.	1·497	−·040	+·006	1·463		
	−63 22	45 58	Def. N.	36 08	44	S.E.	1·511	−·046	+·001	1·466	1·462	A heavy swell, strong breeze, with a heavy sea running.
			Def. S.	36 33	42	S.E.	1·507	−·046	+·001	1·462		
			Def. N.S.	53 22	39	S.E.	1·514	−·046	+·009	1·477		
21.	−63 36	46 46	Def. N.	36 00	40	S.E.	1·519	−·046	+·001	1·474		
			Def. S.	36 33	39	S.E.	1·507	−·046	+·001	1·462		
			Def. N.S.	53 23	39	S.E.	1·513	−·046	+·009	1·476		
	−63 36	46 50	Def. N.	36 01	40	S.E.	1·518	−·046	+·001	1·473		
			Def. S.	36 37	40	S.E.	1·505	−·046	+·001	1·460	1·470	Table unsteady, much motion.
			Def. N.S.	53 26	39	S.E.	1·511	−·046	+·009	1·474		
			Mag. N.	36 39	39	S.E.	1·525	−·046	+·003	1·482		
			Mag. S.	37 09	39	S.E.	1·500	−·046	+·003	1·457		
25.	−61 34	53 49	Def. N.	35 41	42	S.E. ½ E.	1·537	−·044	+·001	1·494		
			Def. S.	36 13	42	S.E. ½ E.	1·527	−·044	+·001	1·484		
			Def. N.S.	53 21	40	S.E. ½ E.	1·515	−·044	+·009	1·480	1·498	Fresh breeze, table steady.
			Mag. N.	36 14	39	S.E. ½ E.	1·558	−·044	+·003	1·517		
			Mag. S.	36 19	39	S.E ½ E.	1·557	−·044	+·003	1·516		

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845. Feb. 26.	−61° 29′	57° 33′	Def. N.	35° 11′	40°	S.E. ½ E.	1·566	—·044	+·001	1·523		
			Def. S.	35 46	40	S.E. ½ E.	1·552	—·044	+·001	1·509		
			Def. N.S.	52 55	40	S.E. ½ E.	1·541	—·044	+·009	1·506		
	−61 22	57 41	Def. N.	35 07	40	S.E.	1·571	—·046	+·001	1·526		
			Def. S.	35 57	40	S.E.	1·540	—·046	+·001	1·495		
			Def. N.S.	52 58	40	S.E.	1·540	—·046	+·009	1·503	1·506	Fresh breezes, table steady.
			Mag. N.	36 24	39	S.E.	1·543	—·046	+·003	1·500		
			Mag. S.	36 22	38	S.E.	1·553	—·046	+·003	1·510		
			wt. 1 gr.	12 41	38	S.E.	1·432	—·046	—·003	1·383*		
			wt. 2 grs.	25 29	38	S.E.	1·528	—·046	—·003	1·479		
27.	−61 10	64 20	Def. N.	34 35	39	S.S.E. ½ E.	1·602	—·048	+·002	1·556	1·560	Very unsteady.
			Def. S.	34 49	39	S.S.E. ½ E.	1·610	—·048	+·002	1·564		
28.	−61 49	71 30	Def. N.	33 47	38	S.S.E.	1·651	—·049	+·002	1·604		
			Def. S.	34 15	38	S.S.E.	1·644	—·049	+·002	1·597		Very unsteady.
			Def. N.S.	51 17	37	S.S.E.	1·635	—·049	+·010	1·596		
			Mag. N.	34 35	37	S.S.E.	1·680	—·049	+·003	1·634	1·605	Table steady.
			Mag. S.	35 15	35	S.S.E.	1·637	—·049	+·003	1·591		
	−61 49	71 32	Def. N.	33 26	35	S.S.E.	1·675	—·049	+·002	1·628		
			Def. S.	34 27	35	S.S.E.	1·632	—·049	+·002	1·585		
			Def. N.S.	51 05	35	S.S.E.	1·646	—·049	+·011	1·608		
Mar. 1.	−62 10	72 25	Def. N.	33 14	46	S.E. by S.	1·687	—·047	+·002	1·642		
			Def. S.	33 31	46	S.E. by S.	1·692	—·047	+·002	1·647		
			Def. N.S.	50 33	46	S.E. by S.	1·680	—·047	+·006	1·639		
			Mag. N.	34 24	46	S.E. by S.	1·695	—·047	+·002	1·650	1·642	Calm, table steady.
			Mag. S.	34 49	46	S.E. by S.	1·673	—·047	+·002	1·628		
			wt. 1 gr.	10 37	46	S.E. by S.	1·706	—·047	—·002	1·657*		
			wt. 2 grs.	22 49	46	S.E. by S.	1·695	—·047	—·002	1·646		
2.	−62 47	76 14	Def. N.	33 15	42	S.E. by E. ½ E.	1·687	—·047	+·001	1·641		
			Def. S.	33 30	42	S.E. by E. ½ E.	1·693	—·041	+·001	1·653		
			Def. N.S.	50 26	42	S.E. by E. ½ E.	1·686	—·041	+·008	1·653		
			Mag. N.	34 15	42	S.E. by E. ½ E.	1·706	—·041	+·003	1·668		
			Mag. S.	34 40	42	S.E. by E. ½ E.	1·685	—·041	+·003	1·647		
			wt. 1 gr.	11 02	42	S.E. by E. ½ E.	1·643	—·041	—·003	1·599*	1·653	Steady breeze, table steady.
			wt. 2 grs.	22 31	42	S.E. by E. ½ E.	1·716	—·041	—·003	1·672		
	−62 49	76 16	Def. N.	32 46	42	S.	1·717	—·056	+·002	1·663		
			Def. S.	33 30	42	S.	1·693	—·056	+·002	1·639		
			Def. N.S.	50 24	42	S.	1·688	—·056	+·008	1·640		
3.	−64 20	79 38	Def. N.	32 32	34	S. by W. ½ W.	1·732	—·054	+·003	1·681		
			Def. S.	32 58	32	S. by W. ½ W.	1·728	—·054	+·003	1·677	1·678	Fresh breeze, unsteady, thick, with squalls of snow.
			Def. N.S.	49 56	31	S. by W. ½ W.	1·717	—·054	+·014	1·677		
5.	−61 42	85 07	Def. N.	31 35	36	S.E. ½ E.	1·795	—·049	+·002	1·748		
			Def. S.	32 09	37	S.E. ½ E.	1·783	—·049	+·002	1·736	1·730	Unsteady; aurora visible.
			Def. N.S.	49 35	37	S.E. ½ E.	1·742	—·049	+·012	1·705		
6.	−60 48	88 33	Def. N.	31 34	39	S.E.	1·796	—·051	+·002	1·747		
			Def. S.	32 27	39	S.E.	1·762	—·051	+·002	1·713		
			Def. N.S.	49 32	38	S.E.	1·746	—·051	+·011	1·706	1·747	Very unsteady, with thick weather.
			Mag. N.	32 38	37	S.E.	1·833	—·051	+·004	1·786		
			Mag. S.	33 01	37	S.E.	1·830	—·051	+·004	1·783		
7.	−61 23	91 15	Def. N.	31 46	41	S.S.W.	1·783	—·053	+·002	1·732		
			Def. S.	32 14	42	S.S.W.	1·779	—·053	+·002	1·728		
			Def. N.S.	49 00	42	S.S.W.	1·785	—·053	+·009	1·741	1·749	Unsteady.
			Mag. N.	32 54	42	S.S.W.	1·811	—·053	+·003	1·761		
			Mag. S.	32 57	42	S.S.W.	1·834	—·053	+·003	1·784		

* Omitted in mean.

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845. Mar. 8.	−61° 07′	92° 10′	Def. N.	31° 13′	41°	E.S.E.	1·824	—·046	+·002	1·780		
			Def. S.	32 04	40	E.S.E.	1·790	—·046	+·002	1·746	1·758	Unsteady, with snow.
			Def. N.S.	49 04	38	E.S.E.	1·782	—·046	+·011	1·747		
9.	−60 30	92 34	Def. N.	31 19	40	S.E. by E.	1·817	—·048	+·002	1·771		
			Def. S.	32 09	41	S.E. by E.	1·784	—·048	+·002	1·738	1·750	Very unsteady.
			Def. N.S.	49 08	41	S.E. by E.	1·780	—·048	+·010	1·742		
10.	−60 03	96 03	Def. N.	31 08	39	E.S.E.	1·832	—·046	+·002	1·788	1·770	Aurora visible, table steady.
			Def. S.	31 56	38	E.S.E.	1·796	—·046	+·002	1·752		
11.	−59 45	99 50	Def. N.	29 54	35	E. ½ N.	1·919	—·041	+·002	1·880		
			Def. S.	30 31	34	E. ½ N.	1·908	—·041	+·002	1·869		
			Def. N.S.	48 58	34	E. ½ N.	1·788	—·041	+·013	1·760	1·836	A heavy sea, very unsteady.
			Mag. N.	32 21	34	E. ½ N.	1·855	—·041	+·004	1·818		
			Mag. S.	32 23	34	E. ½ N.	1·888	—·041	+·004	1·851		
13.	−57 46	99 17	Def. N.	30 34	46	E.N.E.	1·870	—·039	+·001	1·832	1·813	Very unsteady.
			Def. S.	31 28	46	E.N.E.	1·831	—·039	+·001	1·793		
14.	−56 56	101 36	Def. N.	30 31	40	E. by S.	1·876	—·047	+·002	1·831		
			Def. S.	31 20	41	E. by S.	1·842	—·047	+·002	1·797	1·802	A.M. Aurora visible, unsteady.
			Def. N.S.	48 35	41	E. by S.	1·816	—·047	+·010	1·779		
15.	−55 40	103 18	Def. N.	30 30	41	E.N.E.	1·876	—·039	+·002	1·839		
			Def. S.	31 10	41	E.N.E.	1·854	—·039	+·002	1·817	1·815	Squally with snow, unsteady.
			Def. N.S.	48 34	41	E.N.E.	1·817	—·039	+·010	1·788		
16.	−54 38	106 15	Def. N.	30 03	39	E.	1·909	—·045	+·002	1·866		
			Def. S.	31 18	38	E.	1·844	—·045	+·002	1·801	1·817	Heavy squalls, unsteady, snow.
			Def. N.S.	48 34	38	E.	1·817	—·045	+·012	1·784		
17.	−54 10	108 15	Def. N.	29 59	39	E. by S.	1·913	—·047	+·002	1·868		
			Def. S.	31 05	40	E. by S.	1·860	—·047	+·002	1·815	1·821	A strong gale, very unsteady.
			Def. N.S.	48 34	40	E. by S.	1·817	—·047	+·011	1·781		
18.	−53 00	110 30	Def. N.	30 28	44	N.E.	1·878	—·036	+·002	1·844		
			Def. S.	31 14	44	N.E.	1·849	—·036	+·002	1·815		
			Def. N.S.	48 30	43	N.E.	1·822	—·036	+·009	1·795	1·825	Unsteady, a heavy swell from westward. strong breeze.
			Mag. N.	31 55	43	N.E.	1·889	—·036	+·003	1·856		
			Mag. S.	32 48	43	N.E.	1·850	—·036	+·003	1·817		
20.	−48 57	112 56	Def. N.	30 52	47	N.E. ½ N.	1·849	—·035	+·001	1·815		
			Def. S.	31 26	48	N.E. ½ N.	1·834	—·035	+·001	1·800		
			Def. N.S.	48 22	48	N.E. ½ N.	1·831	—·035	+·006	1·802		
			Mag. N.	32 20	49	N.E. ½ N.	1·857	—·035	+·002	1·824		
			Mag. S.	32 58	49	N.E. ½ N.	1·835	—·035	+·002	1·802	1·821	Fresh breeze, very unsteady.
			wt. 1 gr.	9 59	50	N.E. ½ N.	1·813	—·035	—·002	1·776*		
			wt. 2 grs.	20 01	50	N.E. ½ N.	1·920	—·035	—·002	1·883		
			wt. 3 grs.	31 32	50	N.E. ½ N.	1·859	—·035	—·002	1·822		
22.	−47 21	115 15	Def. N.	30 38	50	N.W. ½ N.	1·866	—·029	+·001	1·838		
			Def. S.	30 34	50	N.W. ½ N.	1·897	—·029	+·001	1·869		
			Def. N.S.	48 29	50	N.W. ½ N.	1·821	—·029	+·005	1·797	1·842	Light breeze, table steady, thick fog.
			Mag. N.	32 07	50	N.W. ½ N.	1·876	—·029	+·002	1·849		
			Mag. S.	32 26	50	N.W. ½ N.	1·885	—·029	+·002	1·858		
24.	−45 08	116 50	Def. N.	31 01	49	N. by E.	1·840	—·020	+·001	1·821	1·820	A heavy swell from westward, unsteady.
			Def. S.	31 21	50	N. by E.	1·838	—·020	+·001	1·819		
25.	−43 22	116 49	Def. N.	31 06	55	N. ½ E.	1·833	—·020	·000	1·813		
			Def. S.	31 49	55	N. ½ E.	1·807	—·020	·000	1·787		
			Def. N.S.	48 57	55	N. ½ E.	1·789	—·020	+·002	1·771		
			Mag. N.	32 33	55	N. ½ E.	1·840	—·020	+·001	1·821	1·804	A heavy swell, unsteady.
			Mag. S.	33 24	56	N. ½ E.	1·793	—·020	+·001	1·774		
			wt. 1 gr.	10 20	56	N. ½ E.	1·753	—·020	—·001	1·732*		
			wt. 2 grs.	20 30	56	N. ½ E.	1·877	—·020	—·001	1·856		

* Omitted in mean.

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845. Mar. 26.	−41° 00′	116° 42′	Def. N.	31° 40′	56°	N. by W.	1·790	—·020	·000	1·770		
			Def. S.	31 37	56	N. by W.	1·821	—·020	·000	1·801		
			Def. N.S.	49 41	56	N. by W.	1·736	—·020	+·002	1·718	1·758	A heavy westerly swell.
			Mag. N.	33 19	56	N. by W.	1·780	—·020	+·001	1·761		
			Mag. S.	33 46	56	N. by W.	1·759	—·020	+·001	1·740		
27.	—38 40	116 15	Def. N.	32 33	62	N. by E.	1·731	—·012	·000	1·719		
			Def. S.	32 35	62	N. by E.	1·752	—·012	·000	1·740	1·722	Table steady.
			Def. N.S.	49 55	62	N. by E.	1·720	—·012	—·001	1·707		
28.	—37 00	116 57	Def. N.	33 12	63	N. by E.	1·689	—·012	·000	1·677		
			Def. S.	33 34	64	N. by E. ½ E.	1·687	—·012	·000	1·675		
			Def. N.S.	50 42	64	N. by E. ½ E.	1·670	—·012	—·002	1·656		
			Mag. N.	34 06	68	N. by E. ½ E.	1·717	—·012	—·001	1·704	1·677	Unsteady.
			Mag. S.	34 41	68	N. by E. ½ E.	1·681	—·012	—·001	1·668		
			wt. 1 gr.	11 08	68	N. by E. ½ E.	1·628	—·012	+·001	1·617*		
			wt. 2 grs.	22 48	68	N. by E. ½ E.	1·696	—·012	+·001	1·685		
			wt. 3 grs.	35 19	65	N. by E. ½ E.	1·682	—·012	+·001	1·671		
29.	—36 11	116 48	Def. N.	33 12	67	N.N.E.	1·689	—·012	—·001	1·676		
			Def. S.	33 21	67	N.N.E.	1·702	—·012	—·001	1·689	1·670	Unsteady.
			Def. N.S.	50 51	68	N.N.E.	1·661	—·012	—·003	1·646		
30.	—35 07	117 38	Def. N.	32 54	66	N.N.E.	1·708	—·012	—·001	1·695		
			Def. S.	33 13	66	N.N.E.	1·712	—·012	—·001	1·699	1·694	Unsteady.
			Def. N.S.	50 12	66	N.N.E.	1·701	—·012	—·002	1·687		
April 7.	—35 02	117 56	Def. N.	33 11	68		1·690	......	—·001	1·689		
	King George's		Def. S.	33 32	68		1·690	......	—·001	1·689		
	Sound, West		Def. N.S.	50 24	68		1·689	......	—·003	1·686		
	Australia.		Mag. N.	34 30	68		1·687	......	—·001	1·686		
			Mag. S.	34 34	69	Observed on shore.	1·691	......	—·001	1·690	1·688	On the 8th needle A. was found to have been injured, needle B. was therefore used subsequently.
			wt. 1 gr.	10 44	69		1·688	......	+·001	1·689		
			wt. 1½ gr.	17 16	69		1·688	......	+·001	1·689		
			wt. 2 grs.	22 56	69		1·688	......	+·001	1·689		
			wt. 2½ grs.	28 18	69		1·688	......	+·001	1·689		
			wt. 3 grs.	35 11	69		1·688	......	+·001	1·689		

Needle B.

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
12.	—35 02	117 56	Def. N.	29 23	64		1·711	......	·000	1·711		
	King George's		Def. S.	35 31	64		1·657	......	·000	1·657		
	Sound.		Def. N.S.	50 11	64		1·679	......	·000	1·679	1·672	
			Mag. N.	31 37	64	Observed on shore.	1·658	......	·000	1·658		
			Mag. S.	36 25	62		1·653	......	·000	1·653		
			wt. 1 gr.	16 13	62		1·693	......	·000	1·693		
			wt. 1½ gr.	24 39	62		1·672	......	·000	1·672	1·688	
			wt. 2 grs.	33 27	62		1·698	......	·000	1·698		
23.	—35 30	114 35	Def. N.	30 03	66	N.W.	1·670	—·011	—·001	1·658		
			Def. S.	35 01	66	N.W.	1·687	—·011	—·001	1·675	1·672	Very unsteady, heavy south-west swell.
			Def. N.S.	49 55	66	N.W.	1·696	—·011	—·002	1·683		
25.	—32 24	111 26	Def. N.	31 07	69	N.W. by N.	1·602	—·011	—·001	1·590		
			Def. S.	36 26	69	N.W. by N.	1·603	—·011	—·001	1·591		
			Def. N.S.	51 30	69	N.W. by N.	1·599	—·011	—·004	1·584	1·573	Moderate breeze, table steady.
			Mag. N.	33 14	69	N.W. by N.	1·547	—·011	—·001	1·535		
			Mag. S.	37 23	69	N.W. by N.	1·577	—·011	—·001	1·565		
27.	—29 16	106 49	Def. N.	32 17	72	W.N.W	1·534	—·015	—·001	1·518		
			Def. S.	37 53	72	W.N.W.	1·515	—·015	—·001	1·499	1·499	Very unsteady.
			Def. N.S.	53 15	72	W.N.W.	1·501	—·015	—·005	1·481		

* Omitted in mean.

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845. Ap. 28.	−27° 35′	106° 32′	Def. N.	33° 30′	75	N. by W.	1·467	+·002	—·001	1·468		
			Def. S.	37 36	76	N. by W.	1·532	+·002	—·001	1·533		
			Def. N.S	53 30	76	N. by W.	1·483	+·002	—·006	1·479	1·478	Unsteady, a heavy swell.
			Mag. N.	34 36	76	N. by W.	1·459	+·002	—·002	1·459		
			Mag. S.	39 06	76	N. by W.	1·451	+·002	—·002	1·451		
29.	−25 46	104 55	Def. N.	33 47	68	N.W.	1·450	—·003	—·001	1·446	1·447	Very unsteady.
			Def. S.	39 02	68	N.W.	1·453	—·003	—·001	1·449		
May 1.	−23 58	99 06	Def. N.	34 30	68	W.	1·414	—·022	—·001	1·391		
			Def. S.	39 54	68	W.	1·407	—·022	—·001	1·384	1·381	Unsteady.
			Def. N.S.	55 14	68	W.	1·394	—·022	—·003	1·369		
2.	−24 01	97 25	Def. N.	34 32	72	W. ½ N.	1·412	—·019	—·001	1·392		
			Def. S.	40 02	72	W. ½ N.	1·402	—·019	—·001	1·382	1·381	Unsteady.
			Def. N.S.	55 15	72	W. ½ N.	1·394	—·019	—·005	1·370		
3.	−23 50	95 56	Def. N.	35 00	76	W. ½ N.	1·388	—·019	—·001	1·368		
			Def. S.	40 16	76	W. ½ N.	1·389	—·019	—·001	1·369		
			Def. N.S.	55 38	76	W. ½ N.	1·378	—·019	—·006	1·353		
			wt. 1 gr.	19 28	76	W. ½ N.	1·419	—·019	+·001	1·401	1·377	Steady.
			wt. 1½ gr.	29 58	76	W. ½ N.	1·396	—·019	+·001	1·378		
			wt. 2 grs.	41 30	76	W. ½ N.	1·413	—·019	+·001	1·395		
4.	−24 16	93 48	Def. N.	35 21	76	W.N.W.	1·371	—·010	—·001	1·360		
			Def. S.	41 05	76	W.N.W.	1·350	—·010	—·001	1·339	1·352	Unsteady.
			Def. N.S.	55 45	76	W.N.W.	1·369	—·010	—·001	1·358		
5.	−24 02	92 07	Def. N.	35 51	73	N.W.	1·347	+·008	—·001	1·354	1·367	Cross sea, much rolling motion.
			Def. S.	40 37	73	N.W.	1·373	+·008	—·001	1·380		
7.	−21 44	89 38	Def. N.	36 30	73	N.W. ½ W.	1·316	+·004	—·001	1·319		
			Def. S.	42 13	73	N.W. ½ W.	1·298	+·004	—·001	1·301	1·314	Table unsteady.
			Def. N.S.	56 45	73	N.W. ½ W.	1·322	+·004	—·005	1·321		
8.	−20 38	87 50	Def. N.	36 39	77	N.W. ½ W.	1·309	+·004	—·001	1·312		
			Def. S.	42 49	77	N.W. ½ W.	1·270	+·004	—·001	1·273	1·298	Unsteady.
			Def. N.S.	56 58	77	N.W. ½ W.	1·312	+·004	—·006	1·310		
9.	−20 37	85 02	Def. N.	36 56	77	W. ½ N.	1·295	—·015	—·001	1·279		
			Def. S.	42 49	77	W. ½ N.	1·270	—·015	—·001	1·254	1·263	Heavy swell.
			Def. N.S.	57 46	77	W. ½ N.	1·276	—·015	—·006	1·255		
10.	−20 25	82 10	Def. N.	37 46	77	W. ¾ N.	1·260	—·012	—·001	1·247		
			Def. S.	42 48	76	W. ¾ N.	1·270	—·012	—·001	1·257		
			Def. N.S.	57 46	76	W. ¾ N.	1·276	—·012	—·006	1·258	1·248	Heavy swell.
			Mag. N.	38 04	76	W. ¾ N.	1·256	—·012	—·001	1·243		
			Mag. S.	42 13	76	W. ¾ N.	1·249	—·012	—·001	1·236		
11.	−20 36	79 10	Def. N.	39 00	78	W. ¾ N.	1·207	—·012	—·001	1·194		
			Def. S.	43 29	78	W. ¾ N.	1·239	—·012	—·001	1·226		
			Def. N.S.	58 28	78	W. ¾ N.	1·247	—·012	—·007	1·228	1·213	Unsteady.
			Mag. S.	42 44	78	W. ¾ N.	1·220	—·012	—·002	1·206		
12.	−20 44	78 31	Def. N.	37 23	87	S.	1·275	—·040	—·002	1·233		
			Def. N.	37 12	87	S.S.W.	1·283	—·036	—·002	1·245		
			Def. N.	37 14	87	S.W.	1·282	—·032	—·002	1·248		
			Def. N.	38 13	87	W.S.W.	1·241	—·023	—·002	1·216		
			Def. N.	38 28	87	W.	1·229	—·016	—·002	1·211		These observations were made to determine the effect of the ship's iron at sea.
			Def. N.	38 27	87	W.N.W.	1·230	—·007	—·002	1·221		
			Def. N.	37 47	86	N.W.	1·258	—·001	—·002	1·255	1·234	
			Def. N.	38 14	84	N.N.W.	1·240	·000	—·002	1·238		
			Def. N.	38 11	80	N.	1·242	+·002	—·001	1·243		
			Def. N.	38 28	78	N.N.E.	1·229	·000	—·001	1·228		
			Def. N.	38 17	78	N.E.	1·236	—·001	—·001	1·234		
			Def. N.	38 00	78	E.N.E.	1·249	—·007	—·001	1·241		

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845. May 13.	−20 39	77 43	Def. N.	37 41	81	S.E.	1·262	—·032	—·001	1·229		
			Def. N.	38 00	81	E.	1·249	—·016	—·001	1·232		Made to determine the effect of the ship's iron at sea.
			Def. N.	37 40	81	N.E.	1·264	—·001	—·001	1·262		
			Def. N.	38 24	80	N.	1·232	+·002	—·001	1·233	1·233	
			Def. N.	38 31	79	N.W.	1·228	—·001	—·001	1·226		A rolling motion, not very steady at some points.
			Def. N.	38 20	79	W.	1·235	—·016	—·001	1·218		
16.	−20 26	70 36	Def. N.	38 40	78	W. by N.	1·221	—·011	—·001	1·209		
			Def. S.	43 52	78	W. by N.	1·221	—·011	—·001	1·209	1·205	Unsteady.
			Def. N.S.	59 26	78	W. by N.	1·214	—·011	—·007	1·196		
17.	−20 34	69 24	Def. N.	38 37	78	W. by N.	1·222	—·011	—·001	1·210		
			Def. S.	43 59	78	W. by N.	1·217	—·011	—·001	1·205		
			Def. N.S.	59 09	78	W. by N.	1·222	—·011	—·007	1·204		
			Def. N.	38 09	79	S.W.byW.½W.	1·243	—·030	—·001	1·212	1·210	Unsteady.
			Def. S.	43 17	80	S.W.byW.½W.	1·248	—·030	—·001	1·217		
			Def. N.S.	58 34	80	S.W.byW.½W.	1·243	—·030	—·007	1·206		
			Mag. N.	38 23	80	S.W.byW.½W.	1·237	—·030	—·002	1·205		
			Mag. S.	42 07	80	S.W.byW.½W.	1·253	—·030	—·002	1·221		
19.	−21 11	67 54	Def. N.	38 57	76	N.W.	1·209	—·001	—·001	1·207		
			Def. S.	44 17	76	N.W.	1·203	—·001	—·001	1·201		
			Def. N.S.	59 54	76	N.W.	1·196	—·001	—·005	1·190		Unsteady.
			Mag. N.	38 52	76	N.W.	1·211	—·001	—·001	1·209	1·206	
			wt. 1 gr.	22 44	76	N.W.	1·223	—·001	+·001	1·223		
			wt. 1½ gr.	35 01	76	N.W.	1·215	—·001	+·001	1·215		
			wt. 2 grs.	51 35	76	N.W.	1·195	—·001	+·001	1·195		Steady.
20.	−21 12	67 29	Def. N.	39 02	74	W. by N.	1·205	—·012	—·001	1·192		
			Def. S.	44 03	77	W. by N.	1·212	—·012	—·001	1·199	1·190	Unsteady.
			Def. N.S.	59 59	77	W. by N.	1·194	—·012	—·004	1·178		
21.	−21 01	66 10	Def. N.	39 03	76	W. by N.	1·204	—·012	—·001	1·191		
			Def. S.	44 29	76	W. by N.	1·195	—·012	—·001	1·182		
			Def. N.S.	59 40	76	W. by N.	1·204	—·012	—·005	1·187	1·178	Unsteady.
			Mag. N.	39 14	76	W. by N.	1·194	—·012	—·001	1·181		
			Mag. S.	43 48	76	W. by N.	1·163	—·012	—·001	1·150		
22.	−20 40	62 58	Def. N.	39 28	74	W. by N.	1·189	—·012	—·001	1·176		
			Def. S.	45 01	74	W. by N.	1·173	—·012	—·001	1·160	1·173	Table steady.
			Def. N.S.	59 41	74	W. by N.	1·203	—·012	—·005	1·186		
			Mag. N.	39 28	74	W. by N.	1·181	—·012	—·001	1·168		
27.	−20 09	57 31	Def. N.	40 07	77	On shore at Mauritius.	1·165	....	—·001	1·164		
			Def. S.	45 28	77		1·153	....	—·001	1·152		
			Def. N.S.	60 43	77		1·167	....	—·006	1·161	1·155	Steady.
			Mag. N.	39 55	77		1·158	....	—·001	1·157		
			Mag. S.	44 14	77		1·138	....	—·001	1·137		
			wt. 1 gr.	23 59	80		1·163	....	+·001	1·164		
			wt. 1½ gr.*	33 46	80		1·255	....	+·001	1·256*	1·156	Steady.
			wt. 2 grs.	54 42	80		1·147	....	+·001	1·148		
30.	−21 50	53 25	Def. N.	39 41	81	S.W. by W.	1·182	—·027	—·001	1·154		
			Def. S.	44 25	81	S.W. by W.	1·198	—·027	—·001	1·170	1·161	Unsteady.
			Def. N.S.	59 59	80	S.W. by W.	1·194	—·027	—·008	1·159		
June 3.	−26 26	48 20	Def. N.	39 31	79	N.W. by W.	1·187	—·005	—·001	1·181		
			Def. S.	45 18	78	N.W. by W.	1·161	—·005	—·001	1·155	1·164	Unsteady.
			Def. N.S.	60 41	78	N.W. by W.	1·168	—·005	—·006	1·157		
4.	−27 14	45 50	Def. N.	39 44	69	W.	1·179	—·018	—·001	1·160		
			Def. S.	44 39	70	W.	1·188	—·018	—·001	1·169	1·159	Unsteady,
			Def. N.S.	60 38	70	W.	1·169	—·018	—·003	1·148		

* This observation is evidently wrong, and is omitted in the mean.

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Temperature.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845.												
June 8.	−28° 57′	37° 55′	Def. N.	40° 36′	74°	W.	1·147	−·018	−·001	1·128		
			Def. S.	46 11	76	W.	1·124	−·018	−·001	1·105		
			Def. N.S.	61 44	77	W.	1·131	−·018	−·005	1·108	1·111	Steady.
			Mag. N.	40 27	77	W.	1·132	−·018	−·001	1·113		
			Mag. S.	44 33	77	W.	1·121	−·018	−·001	1·102		
11.	−30 27	33 41	Def. N.	41 32	79	W.N.W.	1·114	−·008	−·001	1·105	1·105	Very unsteady.
13.	−31 06	31 26	Def. N.	41 58	79	W. by S. ½ S.	1·098	−·024	−·001	1·073		
			Def. S.	47 30	79	W. by S. ½ S.	1·079	−·024	−·001	1·054	1·063	
			Def. N.S.	61 41	79	W. by S. ½ S.	1·131*	−·024	−·006	1·101*		
17.	−35 40	21 40	Def. N.	43 12	62	W. by N.	1·053	−·013	·000	1·040	1·033	Unsteady.
			Def. N.S.	64 49	62	W. by N.	1·038	−·013	·000	1·025		
23.	Simon's Bay,		Def. N.	43 22	68	S.	1·047	−·040	−·001	1·006		
	Cape of Good		Def. N.	43 41	67	S.E.	1·036	−·032	·000	1·004		
	Hope.		Def. N.	44 14	67	E.	1·117	−·016	·000	1·001		
			Def. N.	44 35	67	N.E.	1·004	−·001	·000	1·003	1·001	
			Def. N.	44 40	67	N.	1·001	+·002	·000	1·003		
			Def. N.	44 46	67	N.W.	1·997	−·001	·000	0·996		
			Def. N.	44 20	70	W.	1·013	−·016	−·001	0·996		
			Def. N.	43 50	70	S.W.	1·032	−·032	−·001	0·999		
24.	Simon's Bay,		Def. N.	44 38	68	Face East, on shore.	1·004	....	−·001	1·003		
	at the Dock		Def. S.	50 14	68		0·990*	....	−·001	0·989*	1·001	
	Yard.		Def. N.S.	66 16	68		1·002	....	−·002	1·000		
30.			Needle N.	45 01	61	On shore.	0·989	....	·000	0·989		
			Needle S.	49 59	62		0·996	....	·000	0·996		
			Mag. N.S.	66 20	63		0·997	....	−·001	0·996		
			Mag. N.	43 45	64		0·989	....	·000	0·989		
			Mag. S.	47 23	64		0·997	....	·000	0·997		
July 2.			Needle N.	44 33	61	On shore.	1·005	....	·000	1·005		
			Needle S.	49 42	62		1·005	....	·000	1·005		
			Needle N.S.	66 16	63		0·998	....	−·001	0·997		
			Mag. N.	43 15	63		1·006	....	·000	1·006		
			Mag. S.	47 20	64		0·999	....	·000	0·999		
			wt. 1 gr.	28 26	56		0·993	....	·000	0·993	1·000	
			wt. 1½ gr.	44 16	57		0·999	....	·000	0·999		
			wt. 2 grs.	69 15	58		1·001	....	·000	1·001		
11.	Magnetic Observatory, Cape		Def. N.	44 31	75	On shore.	1·006	....	−·001	1·005		
	of Good Hope.		Def. S.	49 48	75		1·002	....	−·001	1·001		
			Mag. N.S.	66 02	75		1·003	....	−·004	0·999		
			Mag. N.	43 21	76		1·002	....	−·001	1·001		
			Mag. S.	47 13	76		1·004	....	−·001	1·003		
			wt. 1 gr.	28 00	76		1·007	....	+·001	1·008		
			wt. 1½ gr.	44 10	76		1·001	....	+·001	1·002		
			wt. 2 grs.	69 31	76		0·999	....	+·001	1·000		

* Not included in mean.

Observations of the Magnetic Force made on board Her Majesty's hired Bark "Pagoda," from the 1st of December 1844 to the 2nd of July 1845. Needle 1. Fox No. 1.; Face West; time usually two hours before Noon.

Observer, Lieut. H. Clerk, R.A.

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Thermometer.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1844. Dec. 1.	−33° 56′	18° 29′	Def. N.	39° 06′	65°	Observed on shore.	1·006	....	·000	1·006		
			Def. S.	40 38	67		1·001	....	—·001	1·000		
			Def. N.S.	59 23	68		0·981	....	—·001	0·980		
			wt. 1 gr.	21 29	70		1·009	....	+·001	1·010		
			wt. 2 grs.	46 54	71		0·995	....	+·001	0·996		
	Magnetic Observatory, Cape of Good Hope.		wt. 2½ grs.	65 22	72		1·000	....	+·001	1·001	0·999	
5.			Def. N.	39 01	72		1·008	....	—·001	1·007		
			Def. S.	40 37	72		1·001	....	—·001	1·000		
			Def. N.S.	59 22	73		0·983	....	—·003	0·980		
			wt. 1 gr.	21 34	74		1·006	....	+·001	1·007		
			wt. 2 grs.	46 33	74		1·001	....	+·001	1·002		
			wt. 2½ grs.	65 19	74		1·001	....	+·001	1·002		
21.	−34 12	18 26	Def. N.	39 04	74	Observed on shore.	1·007	....	—·001	1·006		
			Def. S.	40 25	76		1·007	....	—·001	1·006		
	Dock Yard, Simon's Bay.		Def. N.S.	59 11	78		0·998	....	—·004	0·984	1·005	
			wt. 1 gr.	21 04	78		1·029	....	+·001	1·030		
			wt. 2 grs.	46 30	78		1·002	....	+·001	1·003		
			wt. 2½ grs.	65 49	78		0·997	....	+·001	0·908		
1845. Jan. 10.	−34 44	17 50	Def. N.	39 42	70	w. by n.	0·986	—·009	—·001	0·976		
			Def. S.	40 39	70	w. by n.	1·000	—·009	—·001	0·990	0·981	Table unsteady.
			Def. N.S.	59 11	70	w. by n.	0·988	—·009	—·002	0·977		
13.	—35 12	13 28	Def. N.	40 02	72	s.w. by w.	0·976	—·030	—·001	0·945		
			Def. S.	40 40	72	s.w. by w.	0·999	—·030	—·001	0·968		
			Def. N.S.	59 25	75	s.w. ½ w.	0·980	—·040	—·003	0·937		
			wt. 1 gr.	22 00	70	s.w. ½ w.	0·987	—·040	+·001	0·948	0·950	Table steady.
			wt. 2 grs.	47 02	69	s.w. ½ w.	0·992	—·040	+·001	0·953		
			wt. 2½ grs.	67 01	68	s.w. ½ w.	0·987	—·040	+·001	0·948		
14.	—37 25	13 24	Def. N.	38 52	65	s. by w.	1·013	—·042	·000	0·971		
			Def. S.	40 22	65	s. by w.	1·009	—·042	·000	0·967	0·965	Table unsteady.
			Def. N.S.	58 50	65	s. by w.	1·000	—·042	—·001	0·957		
15.	—38 37	14 27	Def. N.	38 55	62	n.w. by w.	1·012	+·003	·000	1·015		
			Def. S.	39 55	62	n.w. by w.	1·023	+·003	·000	1·026	1·008	Very unsteady.
			Def. N.S.	59 25	66	n.w. by w.	0·980	+·003	—·001	0·982		
16.	—39 10	14 41	Def. N.	38 47	63	s.w.byw.½w.	1·016	—·026	·000	0·990		
			Def. S.	39 35	63	s.w.byw.½w.	1·034	—·026	·000	1·008		
			Def. N.S.	58 30	63	s.w.byw.½w.	1·009	—·026	—·001	0·982		
			wt. 1 gr.	21 32	64	s.w.byw.½w.	1·008	—·026	·000	0·982	0·989	Table steady.
			wt. 2 grs.	45 22	65	s.w.byw.½w.	1·021	—·026	·000	0·995		
			wt. 2½ grs.	64 42	67	s.w.byw.½w.	1·005	—·026	·000	0·979		
17.	—40 21	14 29	Def. N.	38 42	64	s.w. by w.	1·019	—·029	·000	0·990		
			Def. S.	39 25	65	s.w. by w.	1·039	—·029	·000	1·010	0·994	Much motion.
			Def. N.S.	58 27	65	s.w. by w.	1·011	—·029	—·001	0·981		
18.	—42 50	13 00	Def. N.	38 32	60	s.s.w.	1·025	—·040	·000	0·985		
			Def. S.	38 35	59	s.s.w.	1·066	—·040	·000	1·026	0·997	Much motion.
			Def. N.S.	58 07	58	s.s.w.	1·021	—·040	·000	0·981		
19.	—44 50	13 19	Def. N.	38 17	48	s.w. by s.	1·033	—·037	+·001	0·997		
			Def. S.	39 02	45	s.w. by s.	1·051	—·037	+·001	1·015	1·007	Much motion.
			Def. N.S.	57 27	44	s.w. by s.	1·044	—·037	+·003	1·010		

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Thermometer.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845.												
Jan. 21.	−47° 40′	12° 25′	Def. N.	36° 30′	43°	s. by E.	1·091	—·041	+·001	1·051	1·051	Very unsteady.
22.	−48 35	10 51	Def. N.	36 15	48	s.w. by s.	1·101	—·037	+·001	1·065		
			Def. S.	37 35	48	s.w. by s.	1·104	—·037	+·001	1·068	1·060	Table steady.
			Def. N.S.	56 28	47	s.w. by s.	1·080	—·037	+·003	1·046		
23.	−50 30	10 25	Def. N.	35 10	43	s.w. ½ s.	1·140	—·036	+·001	1·105		
			Def. S.	36 37	43	s.w. ½ s.	1·141	—·036	+·001	1·106	1·094	Table steady.
			Def. N.S.	55 47	43	s.w. ½ s.	1·105	—·036	+·003	1·072		
24.	−51 48	9 33	Def. N.	34 47	48	s.w. by w.	1·154	—·029	+·001	1·126		
			Def. S.	36 10	47	s.w. by w.	1·158	—·029	+·001	1·130	1·120	Table steady.
			Def. N.S.	55 07	47	s.w. by w.	1·131	—·029	+·003	1·105		
25.	−52 53	7 53	Def. N.	34 57	41	s.w. by w.	1·148	—·029	+·001	1·120		
			Def. S.	35 47	41	s.w. by w.	1·173	—·029	+·001	1·145	1·122	Rather unsteady.
			Def. N.S.	55 17	40	s.w. by w.	1·125	—·029	+·004	1·100		
26.	−53 52	6 07	Def. N.	34 22	43	w. by s.	1·171	—·020	+·001	1·152		
			Def. S.	35 42	43	w. by s.	1·175	—·020	+·001	1·156		
			Def. N.S.	54 30	42	w. by s.	1·155	—·020	+·003	1·138	1·143	Very steady.
			wt. 1 gr.	18 12	41	w. by s.	1·185	—·020	—·001	1·164		
			wt. 2 grs.	39 40	40	w. by s.	1·138	—·020	—·001	1·117		
			wt. 2½ grs.	51 50	41	w. by s.	1·155	—·020	—·001	1·134		
27.	−55 08	5 50	Def. N.	33 05	39	s.s.w. ½ w.	1·221	—·038	+·002	1·185		
			Def. S.	35 52	38	s.s.w. ½ w.	1·201	—·038	+·002	1·165	1·161	Very unsteady.
			Def. N.S.	54 12	37	s.s.w. ½ w.	1·167	—·038	+·005	1·134		
30.	−60 43	4 00	Def. N.S.	51 57	35	s.	1·262	—·049	+·006	1·219		
			Def. N.S.	51 35	34	s.E. by E.	1·282	—·034	+·006	1·254	1·240	Table unsteady.
			Def. N.S.	52 22	34	N.	1·246	—·004	+·006	1·248		
31.	−61 05	9 03	Def. N.	30 57	42	s.E. by s.	1·320	—·044	+·002	1·278		
			Def. S.	31 55	42	s.E. by s.	1·339	—·044	+·002	1·297		
			Def. N.S.	51 22	41	s.E. by s.	1·294	—·044	+·005	1·255		
			wt. 1 gr.	16 02	41	s.E. by s.	1·340	—·044	—·001	1·295	1·285	Table steady.
			wt. 2 grs.	32 22	41	s.E. by s.	1·343	—·044	—·001	1·298		
			wt. 2½ grs.	43 02	41	s.E. by s.	1·332	—·044	—·001	1·287		
Feb. 2.	−61 54	16 23	Def. N.	29 57	40	E.S.E.	1·368	—·032	+·003	1·339		
			Def. S.	30 57	39	E.S.E.	1·384	—·032	+·003	1·355	1·331	Table unsteady.
			Def. N.S.	50 45	38	E.S.E.	1·325	—·032	+·006	1·299		
3.	−61 50	19 13	Def. N.	30 10	41	E.S.E.	1·348	—·032	+·002	1·318		
			Def. S.	31 20	41	E.S.E.	1·366	—·032	+·002	1·336		
			Def. N.S.	50 20	40	E.S.E.	1·346	—·032	+·006	1·320		
			wt. 1 gr.	15 05	38	E.S.E.	1·420	—·032	—·002	1·386	1·334	Very steady.
			wt. 2 grs.	31 55	38	E.S.E.	1·376	—·032	—·002	1·342		
			wt. 2½ grs.	42 57	38	E.S.E.	1·336	—·032	+·002	1·302		
4.	−62 00	20 25	Def. N.	29 30	38	S.S.E.	1·388	—·046	+·003	1·345		
			Def. S.	30 37	37	S.S.E.	1·401	—·046	+·003	1·358	1·353	Very steady.
			Def. N.S.	49 27	37	S.S.E.	1·396	—·046	+·006	1·356		
6.	−64 20	24 05	Def. N.	28 00	37	S.S.E.	1·461	—·050	+·003	1·414		
			Def. S.	29 57	37	S.S.E.	1·435	—·050	+·003	1·388		
			Def. N.S.	49 02	37	S.S.E.	1·422	—·050	+·007	1·379		
			wt. 1 gr.	14 17	36	S.S.E.	1·499	—·050	—·002	1·447	1·401	Very steady.
			wt. 2 grs.	30 00	36	S.S.E.	1·454	—·050	—·002	1·402		
			wt. 2½ grs.	39 40	36	S.S.E.	1·425	—·050	—·002	1·373		
7.	−65 34	28 30	Def. N.	27 37	41	S.S.E. ½ E.	1·481	—·049	+·002	1·434		
			Def. S.	28 57	42	S.S.E. ½ E.	1·486	—·049	+·002	1·439	1·432	Very steady.
			Def. N.S.	48 17	42	S.S.E. ½ E.	1·466	—·049	+·005	1·422		
9.	−66 30	36 46	Def. N.	26 52	34	E.	1·519	—·026	+·004	1·497		
			Def. S.	28 35	33	E.	1·506	—·026	+·004	1·484	1·482	Very steady.
			Def. N.S.	48 00	32	E.	1·483	—·026	+·008	1·465		
10.	−66 43	38 49	Def. N.	26 15	34	S.S.W.	1·553	—·050	+·004	1·507		
			Def. S.	28 00	34	S.S.W.	1·538	—·050	+·004	1·492	1·491	Very steady.
			Def. N.S.	47 30	34	S.S.W.	1·516	—·050	+·007	1·473		

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Thermometer.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845. Feb. 11.	−67° 35′	39° 31′	Def. N.	26° 35′	33°	N.E.	1·534	−·016	+·004	1·522		
			Def. S.	27 55	32	N.E.	1·544	−·016	+·004	1·532	1·519	Very unsteady.
			Def. N.S.	47 35	31	N.E.	1·510	−·016	+·008	1·502		
12.	−66 45	39 23	Def. N.	26 12	37	S.S.E.	1·556	−·049	+·003	1·510		
			Def. S.	28 17	37	S.S.E.	1·522	−·049	+·003	1·476	1·494	Very unsteady.
			Def. N.S.	47 12	37	S.S.E.	1·537	−·049	+·007	1·495		
13.	−67 00	40 07	Def. N.	26 22	37	E.N.E.	1·547	−·025	+·003	1·525		
			Def. S.	28 10	36	E.N.E.	1·529	−·025	+·003	1·507		
			Def. N.S.	47 42	35	E.N.E.	1·504	−·025	+·007	1·486		
			wt. 1 gr.	14 00	32	E.N.E.	1·529	−·025	−·002	1·502	1·499	Table steady.
			wt. 2 grs.	28 17	32	E.N.E.	1·534	−·025	−·002	1·507		
			wt. 2½ grs.	37 27	32	E.N.E.	1·496	−·025	−·002	1·469		
16.	−64 52	38 37	Def. N.	27 10	37	S. ¾ E.	1·504	−·053	+·003	1·454	1·470	Very unsteady.
			Def. S.	28 02	37	S. ¾ E.	1·536	−·053	+·003	1·486		
17.	−64 52	40 12	Def. N.	27 34	38	N. by W.	1·488	−·019	+·003	1·472		
			Def. S.	29 12	38	N. by W.	1·473	−·019	+·003	1·457	1·463	Very unsteady.
			Def. N.S.	48 10	38	N. by W.	1·473	−·019	+·006	1·460		
18.	−64 22	40 49	Def. N.	26 52	38	S. by E.	1·519	−·053	+·003	1·469	1·460	Very unsteady.
			Def. S.	28 42	37	S. by E.	1·500	−·053	+·003	1·450		
19.	−63 49	42 00	Def. N.	28 35	39	E. by S.	1·431	−·053	+·003	1·399		
			Def. S.	29 47	37	E. by S.	1·443	−·035	+·003	1·411	1·416	Very unsteady.
			Def. N.S.	48 15	36	E. by S.	1·468	−·035	+·006	1·439		
20.	−63 22	45 35	Def. S.	29 02	44	S.E. by E. ½ E.	1·482	−·049	+·002	1·435	1·437	Very unsteady.
			Def. N.S.	48 00	45	S.E. by E. ½ E.	1·483	−·049	+·005	1·439		
21.	−63 36	46 41	Def. N.	27 00	42	S.S.E.	1·512	−·049	+·002	1·465		
			Def. S.	28 37	41	S.S.E.	1·505	−·049	+·002	1·458	1·457	Table unsteady.
			Def. N.S.	47 52	41	S.S.E.	1·491	−·049	+·006	1·448		
24.	−62 36	51 40	Def. N.S.	47 54	36	E.	1·490	−·031	+·007	1·466		
			Def. N.	26 45	36	E.	1·526	−·031	+·003	1·498	1·466	Very unsteady.
			Def. S.	29 27	34	E.	1·460	−·031	+·004	1·433		
25.	−61 25	53 38	Def. N.	27 05	40	E.S.E.	1·507	−·039	+·003	1·471		
			Def. S.	28 32	39	E.S.E.	1·510	−·039	+·003	1·474	1·476	Unsteady.
			Def. N.S.	47 30	38	E.S.E.	1·516	−·039	+·006	1·483		
26.	−61 17	57 28	Def. N.	25 30	41	S.E. ½ E.	1·595	−·044	+·002	1·553		
			Def. S.	27 30	42	S.E. ½ E.	1·566	−·044	+·002	1·524	1·535	Table unsteady.
			Def. N.S.	46 45	44	S.E. ½ E.	1·567	−·044	+·005	1·528		
27.	−61 00	64 03	Def. N.	25 17	37	S.E. ½ S.	1·607	−·050	+·003	1·560		
			Def. S.	26 30	36	S.E. ½ S.	1·622	−·050	+·004	1·576	1·553	Table steady.
			Def. N.S.	46 47	35	S.E. ½ S.	1·564	−·050	+·008	1·522		
28.	−61 36	70 46	Def. N.	24 22	40	S.S.E.	1·660	−·052	+·003	1·611		
			Def. S.	25 57	39	S.S.E.	1·654	−·052	+·003	1·605	1·604	Table unsteady.
			Def. N.S.	45 42	38	S.S.E.	1·640	−·052	+·007	1·595		
Mar. 1.	−62 10	72 25	Def. N.	23 10	44	S.S.E.	1·731	−·052	+·002	1·681		
			Def. S.	25 37	44	S.S.E.	1·674	−·052	+·002	1·624		
			Def. N.S.	44 50	44	S.S.E.	1·705	−·052	+·005	1·658		
			wt. 1 gr.	11 37	44	S.S.E.	1·837	−·052	−·001	1·784*	1·657	Table steady.
			wt. 2 grs.	25 00	43	S.S.E.	1·719	−·052	−·001	1·666		
			wt. 2½ grs.	32 12	43	S.S.E.	1·708	−·052	−·001	1·655		
2.	−62 40	76 09	Def. N.	23 50	42	S.	1·693	−·056	+·002	1·639		
			Def. S.	25 10	42	S.	1·699	−·056	+·002	1·645		
			Def. N.S.	44 45	41	S.	1·710	−·056	+·006	1·660		
			wt. 1 gr.	11 35	39	S.	1·838	−·056	−·001	1·781*	1·656	Very steady.
			wt. 2 grs.	24 47	39	S.	1·733	−·056	−·001	1·676		
			wt. 2½ grs.	32 00	39	S.	1·718	−·056	−·001	1·661		

* Not included in the mean; angle of deflection become too small.

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Thermometer.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845. Mar. 3.	−64° 20′	79° 38′	Def. N.	22° 38′	33°	s. by w. ½ w.	1·763	—·055	+·004	1·712		
			Def. S.	24 17	32	s. by w. ½ w.	1·754	—·055	+·004	1·703	1·706	Table unsteady.
			Def. N.S.	44 12	32	s. by w. ½ w.	1·750	—·055	+·009	1·704		
5.	−61 38	84 40	Def. N.	23 02	39	S.E.	1·740	—·051	+·003	1·692		
			Def. S.	24 20	40	S.E.	1·752	—·051	+·003	1·704	1·689	Table unsteady.
			Def. N.S.	44 40	41	S.E.	1·716	—·051	+·007	1·672		
6.	−60 42	88 12	Def. N.	22 40	36	N.E. ½ N.	1·761	—·025	+·004	1·740		
			Def. S.	23 55	36	N.E. ½ N.	1·780	—·025	+·004	1·759	1·729	Table unsteady.
			Def. N.S.	44 50	35	N.E. ½ N.	1·705	—·025	+·008	1·688		
7.	−61 20	91 09	Def. N.	22 02	40	S. by E.	1·800	—·055	+·003	1·748		
			Def. S.	23 05	41	S. by E.	1·831	—·055	+·003	1·779	1·761	
			Def. N.S.	43 30	42	S. by E.	1·805	—·055	+·007	1·757		
	−61 26	91 20	Def. N.	22 00	40	S.W. by S.	1·801	—·054	+·004	1·751		
			Def. S.	23 22	40	S.W. by S.	1·812	—·054	+·004	1·762	1·756	Table unsteady.
			Def. N.S.	43 37	39	S.W. by S.	1·800	—·054	+·008	1·754		
8.	−61 14	92 03	Def. N.	22 05	39	E.	1·795	—·042	+·004	1·757		
			Def. S.	23 37	38	E.	1·796	—·042	+·004	1·758		
			Def. N.S.	43 32	37	E.	1·804	—·042	+·008	1·770		
			wt. 1 gr.	11 17	36	E.	1·890	—·045	—·002	1·843*	1·762	Table steady.
			wt. 2 grs.	23 50	35	E.	1·801	—·045	—·002	1·754*		
			wt. 2½ grs.	29 05	34	E.	1·870	—·045	—·002	1·823*		
9.	−60 35	92 25	Def. N.	22 17	41	E.	1·783	—·045	+·003	1·741		
			Def. S.	23 55	37	E.	1·780	—·045	+·004	1·739	1·745	Table unsteady.
			Def. N.S.	43 40	38	E.	1·791	—·045	+·008	1·754		
10.	−60 03	95 36	Def. N.	20 57	36	S.E. ½ S.	1·867	—·055	+·004	1·816	1·798	Very unsteady.
			Def. S.	23 07	36	S.E. ½ S.	1·831	—·055	+·004	1·780		
11.	−59 52	99 30	Def. N.	21 05	38	E. ½ S.	1·810	—·047	+·004	1·767		
			Def. S.	22 57	37	E. ½ S.	1·839	—·047	+·004	1·796	1·770	Very unsteady.
			Def. N.S.	43 45	36	E. ½ S.	1·785	—·047	+·009	1·747		
	−59 59	99 39	Def. N.	21 42	40	E. ½ N.	1·820	—·042	+·004	1·782		
			Def. S.	23 32	40	E. ½ N.	1·804	—·042	+·004	1·766		
			Def. N.S.	43 25	39	E. ½ N.	1·813	—·042	+·008	1·779	1·773	Table unsteady 5 P.M.
			wt. 1 gr.	11 20	35	E. ½ N.	1·884	—·042	—·003	1·839*		
			wt. 2 grs.	23 42	35	E. ½ N.	1·810	—·042	—·003	1·763		
			wt. 2½ grs.	30 02	34	E. ½ N.	1·820	—·042	—·003	1·775		
13.	−57 35	99 28	Def. N.S.	41 05	35	E. by S.	2·006	—·047	+·009	1·968	1·968	Very unsteady 6 P.M.
14.	−56 53	101 24	Def. N.	21 15	41	E. by S.	1·848	—·047	+·003	1·804		
			Def. S.	22 57	41	E. by S.	1·839	—·047	+·003	1·795	1·786	Very unsteady.
			Def. N.S.	43 35	40	E. by S.	1·800	—·047	+·007	1·760		
15.	−55 52	103 06	Def. N.	21 15	39	E. by N.	1·848	—·042	+·004	1·810		
			Def. S.	22 35	39	E. by N.	1·864	—·042	+·004	1·826	1·816	Very unsteady.
			Def. N.S.	43 00	38	E. by N.	1·845	—·042	+·008	1·811		
16.	−54 48	106 04	Def. N.	21 30	40	N.E.	1·832	—·036	+·004	1·800		
			Def. S.	22 52	40	N.E.	1·844	—·036	+·004	1·812	1·801	Very unsteady.
			Def. N.S.	43 20	39	N.E.	1·819	—·036	+·008	1·791		
17.	−54 17	108 05	Def. N.	20 20	41	S.E.	1·912	—·054	+·004	1·862		
			Def. S.	22 22	41	S.E.	1·878	—·054	+·004	1·828	1·816	Very unsteady, ship pitching heavily.
			Def. N.	21 35	40	E.	1·826	—·045	+·004	1·785		
			Def. S.	23 10	40	E.	1·830	—·045	+·004	1·789		
18.	−53 00	110 08	Def. N.	21 37	40	N.N.E. ½ E.	1·825	—·034	+·004	1·795		
			Def. S.	22 40	40	N.N.E. ½ E.	1·858	—·034	+·004	1·828	1·814	Very unsteady, a heavy swell.
			Def. N.S.	42 57	39	N.N.E. ½ E.	1·846	—·034	+·008	1·820		
19.	−51 20	111 23	Def. S.	23 20	41	N.N.E. ½ E.	1·816	—·034	+·004	1·786	1·787	Very unsteady, a heavy swell.
			Def. N.S.	43 22	41	N.N.E. ½ E.	1·818	—·034	+·004	1·788		

* Not included in the mean.

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Thermometer.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845. Mar. 20.	−49° 01′	111° 47′	Def. N.	21° 20′	45°	N.E. by N.	1·843	−·027	+·003	1·819	1·798	Table unsteady, swell from west.
			Def. S.	23 32	45	N.E. by N.	1·805	−·027	+·003	1·781		
			Def. N.S.	43 15	45	N.E. by N.	1·825	−·027	+·006	1·804		
			wt. 1 gr.	11 10	44	N.E. by N.	1·911	−·027	−·002	1·882†		
			wt. 2 grs.	23 32	44	N.E. by N.	1·823	−·027	−·002	1·794		
			wt. 2½ grs.	30 02	45	N.E. by N.	1·820	−·027	−·002	1·791		
22.	−47 21	115 15	Def. N.	21 05	49	E.N.E.	1·857	−·035	+·002	1·824	1·825	Steady, light swell from west.
			Def. S.	22 10	49	E.N.E.	1·892	−·035	+·002	1·859		
			Def. N.S.	43 20	48	E.N.E.	1·821	−·035	+·005	1·791		
25.	−43 20	116 52	Def. N.	23 27*	51	N. ½ E.	1·712	−·025	+·002	1·689†	1·760	Very unsteady, heavy swell from west.
			Def. S.	23 35	51	N. ½ E.	1·799	−·025	+·002	1·776		
			Def. N.S.	43 45	51	N. ½ E.	1·785	−·025	+·003	1·763		
			wt. 1 gr.	12 07	50	N. ½ E.	1·764	−·025	−·001	1·738		
			wt. 2 grs.	23 32	50	N. ½ E.	1·823	−·025	−·001	1·797		
			wt. 2½ grs.	31 17	50	N. ½ E.	1·752	−·025	−·001	1·726		
26.	−41 18	116 09	Def. N.	22 30	54	N. by W.	1·771	−·020	+·001	1·752	1·746	Unsteady, light swell.
			Def. S.	23 57	54	N. by W.	1·776	−·020	+·001	1·757		
			Def. N.S.	44 15	54	N. by W.	1·747	−·020	+·002	1·729		
27.	−38 52	116 15	Def. N.	22 37	58	N. by W.	1·765	−·012	·000	1·753	1·738	Table steady.
			Def. S.	23 52	58	N. by W.	1·770	−·012	·000	1·758		
			Def. N.S.	44 40	60	N. by W.	1·716	−·012	·000	1·704		
28.	−37 03	116 57	Def. N.	23 25	59	N. by E.	1·718	−·012	·000	1·706	1·695	Table very steady, nearly a calm.
			Def. S.	24 45	60	N. by E.	1·725	−·012	·000	1·713		
			Def. N.S.	44 30	61	N. by E.	1·728	−·012	·000	1·716		
			wt. 1 gr.	12 45	62	N. by E.	1·678	−·012	·000	1·666		
			wt. 2 grs.	25 40	62	N. by E.	1·678	−·012	·000	1·666		
			wt. 2½ grs.	32 07	63	N. by E.	1·714	−·012	·000	1·702		
29.	−36 12	116 50	Def. N.	23 40	66	N.N.E.	1·701	−·012	−·001	1·688	1·673	Table unsteady.
			Def. S.	25 37	67	N.N.E.	1·673	−·012	−·001	1·660		
			Def. N.S.	45 05	68	N.N.E.	1·685	−·012	−·003	1·670		
30.	−35 18	117 07	Def. N.	23 22	66	N.E. ½ E.	1·719	−·012	−·001	1·706	1·702	Table unsteady.
			Def. S.	24 45	66	N.E. ½ E.	1·725	−·012	−·001	1·712		
			Def. N.S.	44 52	66	N.E. ½ E.	1·701	−·012	−·002	1·687		
April 7.	−35 02	117 56	Def. N.	23 50	68	Observed on shore.	1·692	....	−·001	1·691	1·688	The observations were made on the same spot where Captains FLINDERS and FITZROY had previously observed.
			Def. S.	25 18	68		1·692	....	−·001	1·691		
			Def. N.S.	45 06	69		1·685	....	−·001	1·684		
			wt. 1 gr.	12 22	69		1·726	....	−·001	1·727†		
			wt. 2 grs.	25 24	69		1·695	....	−·001	1·696		
			wt. 2½ grs.	32 52	68		1·676	....	−·001	1·677		
11.	King George's Sound, West Australia.		Def. N.	23 42	82		1·700	....	−·002	1·698		
			Def. S.	25 12	82		1·697	....	−·002	1·695		
			Def. N.S.	44 59	83		1·692	....	−·005	1·687		
			wt. 1 gr.	12 37	84		1·692	....	+·001	1·693		
			wt. 2 grs.	25 30	84		1·689	....	+·001	1·690		
			wt. 2½ grs.	33 01	85		1·670	....	+·002	1·672		
19.	At Anchor in the Sound. Swinging the ship for local attraction.		Def. N.S.	44 09	54	S.S.W.	1·754	−·056	+·001	1·699		
			Def. N.S.	44 20	54	S.W.	1·740	−·051	+·001	1·690		
			Def. N.S.	44 30	54	W.S.W.	1·728	−·041	+·001	1·688		
			Def. N.S.	44 44	54	W.	1·710	−·032	+·001	1·679		
			Def. N.S.	44 50	54	W.N.W.	1·702	−·022	+·001	1·681		
			Def. N.S.	45 04	54	N.W.	1·687	−·012	+·001	1·676		
			Def. N.S.	45 01	54	N.N.W.	1·691	−·012	+·001	1·680		
			Def. N.S.	44 59	57	N.	1·692	−·012	+·001	1·681		The table was very steady during these observations.
			Def. N.S.	45 03	58	N.N.E.	1·688	−·012	·000	1·676	1·683	

* The degree should probably be 22°; not included.

† Not included in the mean.

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Thermometer.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845.	° ′	° ′		° ′	°							
Apr. 19.	Swinging the ship for local attraction.		Def. N.S.	45 01	59	N.E.	1·691	—·012	·000	1·679	1·683	Intensity by Def. N.S. on shore 1·685.
			Def. N.S.	44 49	60	E.N.E.	1·702	—·022	·000	1·680		
			Def. N.S.	44 47	60	E.	1·705	—·032	·000	1·673		
			Def. N.S.	44 33	63	E.S.E.	1·723	—·041	—·001	1·681		
			Def. N.S.	44 20	63	S.E.	1·740	—·051	—·001	1·688		
			Def. N.S.	44 14	63	S.S.E.	1·748	—·056	—·001	1·691		
			Def. N.S.	44 11	63	S.	1·751	—·061	—·001	1·689		
23.	—35 36	114 44	Def. N.	23 57	64	N.W.	1·686	—·012	·000	1·674	1·688	Table unsteady.
			Def. S.	24 47	64	N.W.	1·722	—·012	·000	1·710		
			Def. N.S.	45 00	64	N.W.	1·692	—·012	—·001	1·679		
24.	—34 16	113 01	Def. N.	24 40	67	N.W. by N.	1·643	—·012	—·001	1·630	1·641	Table unsteady.
			Def. S.	25 37	69	N.W. by N.	1·674	—·012	—·001	1·661		
			Def. N.S.	45 37	70	N.W. by N.	1·647	—·012	—·002	1·633		
25.	—32 32	111 36	Def. N.	25 02	67	N.W. by N.	1·623	—·008	—·001	1·614	1·613	Table unsteady.
			Def. S.	26 17	69	N.W. by N.	1·634	—·008	—·001	1·625		
			Def. N.S.	46 05	70	N.W. by N.	1·612	—·008	—·003	1·601		
27.	—29 20	106 55	Def. N.	25 07	72	W.N.W.	1·619	—·016	—·002	1·601	1·553	Table steady.
			Def. S.	27 32	72	W.N.W.	1·566	—·016	—·002	1·548		
			Def. N.S.	47 15	72	W.N.W.	1·531	—·016	—·004	1·511		
28.	—27 47	106 36	Def. N.	27 17	68	N. by W. ½ W.	1·497	·000	—·001	1·496	1·490	Very unsteady, heavy swell.
			Def. S.	29 02	69	N. by W. ½ W.	1·482	·000	—·001	1·481		
			Def. N.S.	47 47	69	N. by W. ½ W.	1·497	·000	—·003	1·494		
29.	—26 00	105 11	Def. N.	27 30	72	N.W.	1·486	—·005	—·001	1·480	1·470	Very unsteady, heavy swell.
			Def. S.	29 10	74	N.W.	1·474	—·005	—·001	1·468		
			Def. N.S.	48 12	75	N.W.	1·471	—·005	—·004	1·462		
May 1.	—24 00	99 23	Def. N.	29 07	69	W.	1·396	—·021	—·001	1·374	1·367	Very unsteady, much motion.
			Def. S.	31 00	69	W.	1·381	—·021	—·001	1·359		
			Def. N.S.	49 30	70	W.	1·393	—·021	—·003	1·369		
2.	—24 01	97 30	Def. N.	29 02	70	W. ½ N.	1·410	—·017	—·001	1·392	1·379	Table steady, little motion.
			Def. S.	30 50	71	W. ½ N.	1·390	—·017	—·001	1·372		
			Def. N.S.	49 32	71	W. ½ N.	1·392	—·017	—·003	1·372		
3.	—24 00	96 06	Def. N.	29 40	76	W. ½ N.	1·381	—·017	—·001	1·363	1·365	Table steady, no swell.
			Def. S.	31 02	76	W. ½ N.	1·380	—·017	—·001	1·362		
			Def. N.S.	50 15	77	W. ½ N.	1·350	—·017	—·004	1·329		
			wt. 1 gr.	15 02	77	W. ½ N.	1·423	—·017	+·001	1·407		
			wt. 2 grs.	31 47	76	W. ½ N.	1·380	—·017	+·001	1·364		
			wt. 2½ grs.	41 10	76	W. ½ N.	1·383	—·017	+·001	1·367		
6.	—22 47	91 00	Def. N.	30 57	76	N.W.	1·320	+·008	—·001	1·327	1·324	Very unsteady, heavy westerly swell.
			Def. S.	32 25	79	N.W.	1·315	+·008	—·002	1·321		
			Def. N.S.	60 50	80	N.W.	1·321	+·008	—·005	1·324		
7.	—21 50	89 44	Def. N.	30 45	72	N.W.	1·329	+·008	—·001	1·336	1·326	
			Def. S.	32 15	74	N.W.	1·322	+·008	—·001	1·329		
			Def. N.S.	51 10	75	N.W.	1·308	+·008	—·004	1·312		
8.	—20 46	87 59	Def. N.	31 45	75	N.W. by W.	1·279	+·004	—·001	1·282	1·294	W. Burdon, Esq., R.N., observer.
			Def. S.	32 20	76	N.W. by W.	1·318	+·004	—·001	1·321		
			Def. N.S.	51 25	77	N.W. by W.	1·292	+·004	—·004	1·292		
			Def. N.	32 00	78	N.W. by W.	1·268	+·004	—·002	1·270		
			Def. S.	32 37	77	N.W. by W.	1·306	+·004	—·001	1·309		
			Def. N.S.	51 27	77	N.W. by W.	1·291	+·004	—·004	1·291		
9.	—20 38	85 26	Def. N.	31 42	77	W. ½ N.	1·286	—·014	—·001	1·271	1·265	Very unsteady, heavy swell.
			Def. S.	33 02	77	W. ½ N.	1·286	—·014	—·001	1·271		
			Def. N.S.	51 50	77	W. ½ N.	1·270	—·014	—·004	1·252		

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Thermometer.	Ship's head.	Intensity.	Corrections. Ship's attraction.	Corrections. Temperature.	Corrected Intensity.		Remarks.
1845. May 10.	–20° 26′	82° 22′	Def. N.	31° 37′	77°	W. ½ N.	1·288	–·014	–·001	1·273		
			Def. S.	33 15	78	W. ½ N.	1·277	–·014	–·001	1·262		
			Def. N.S.	52 10	80	W. ½ N.	1·260	–·014	–·005	1·241		
			Def. N.	31 35	75	W. ¼ N.	1·289	–·016	–·001	1·272	1·257	Very unsteady.
			Def. S.	33 27	75	W. ¼ N.	1·269	–·016	–·001	1·252		W. Burdon, Esq.,
			Def. N.S.	52 07	74	W. ¼ N.	1·260	–·016	–·003	1·241		R.N., observer.
11.	–20 36	79 22	Def. N.	31 52	77	W. ¼ N.	1·274	–·016	–·001	1·257		
			Def. S.	33 37	77	W. ¼ N.	1·262	–·016	–·001	1·245		W. Burdon, Esq.,
			Def. N.S.	52 07	78	W. ¼ N.	1·260	–·016	–·005	1·239		R.N., observer.
			Def. N.	31 52	78	W. ¼ N.	1·274	–·016	–·002	1·256	1·247	Table unsteady.
			Def. S.	33 40	77	W. ¼ N.	1·260	–·016	–·002	1·242		
			Def. N.S.	52 00	78	W. ¼ N.	1·262	–·016	–·005	1·241		
12.	–20 44	78 31	Def. N.S.	52 17	84	W.	1·249	–·018	–·006	1·225		
			Def. N.S.	52 20	86	W.N.W.	1·248	–·004	–·006	1·238		
			Def. N.S.	52 32	88	N.W.	1·239	+·008	–·006	1·241		
			Def. N.S.	52 50	91	N.N.W.	1·226	+·006	–·008	1·224		
			Def. N.S.	51 20	80	S.	1·296	–·046	–·005	1·245	1·238	Table very unsteady,
			Def. N.S.	51 22	82	S.S.W.	1·294	–·043	–·005	1·246		calm.
			Def. N.S.	51 30	82	S.W.	1·287	–·037	–·005	1·245		
			Def. N.S.	51 55	83	W.S.W.	1·267	–·026	–·005	1·236		
			Def. N.S.	52 25	82	N.N.E.	1·242	+·006	–·005	1·243		
13.	–20 39	77 43	Def. N.S.	52 42	77	W.	1·227	–·018	–·004	1·205		
			Def. N.S.	52 15	77	N.W.	1·250	+·008	–·004	1·254		
			Def. N.S.	52 32	77	N.	1·239	+·008	–·004	1·243	1·237	Very unsteady;
			Def. N.S.	52 22	77	N.E.	1·247	+·008	–·004	1·251		calm.
			Def. N.S.	52 07	78	E.	1·260	–·018	–·005	1·237		
			Def. N.S.	51 45	77	S.E.	1·275	–·037	–·004	1·234		
14.	–20 29	76 22	Def. N.	32 27	76	W. ½ N.	1·249	–·016	–·001	1·232		
			Def. S.	33 52	76	W. ½ N.	1·252	–·016	–·001	1·235		
			Def. N.S.	52 50	76	W. ½ N.	1·226	–·016	–·004	1·206		
			Def. N.	33 20	76	W. ½ N.	1·212	–·016	–·001	1·195	1·222	Very unsteady.
			Def. S.	33 37	76	W. ½ N.	1·262	–·016	–·001	1·245		W. Burdon, Esq.,
			Def. N.S.	52 30	75	W. ½ N.	1·238	–·016	–·004	1·218		R.N., observer.
16.	–20 28	70 46	Def. N.	32 45	78	W. ¼ N.	1·236	–·017	–·002	1·217		
			Def. S.	34 05	78	W. ¼ N.	1·200	–·017	–·002	1·181	1·199	Table steady.
			Def. N.S.	52 55	78	W. ¼ N.	1·222	–·017	–·005	1·200		
18.	–21 06	68 12	Def. N.	32 57	80	W.S.W.	1·227	–·026	–·002	1·199		
			Def. S.	34 37	80	W.S.W.	1·221	–·026	–·002	1·193	1·191	Very unsteady.
			Def. N.S.	53 10	83	W.S.W.	1·212	–·026	–·005	1·181		
19.	–21 11	67 54	Def. N.	33 12	75	N.W. by N.	1·217	–·001	–·001	1·215		
			Def. S.	34 45	76	N.W. by N.	1·215	–·001	–·001	1·213		
			Def. N.S.	53 10	75	N.W. by N.	1·212	–·001	–·004	1·207		
			wt. 1 gr.	18 00	75	N.W. by N.	1·197	–·001	+·001	1·197		
			wt. 2 grs.	37 52	75	N.W. by N.	1·183	–·001	+·001	1·183	1·203	Table steady, nearly
			wt. 2½ grs.	49 32	75	N.W. by N.	1·196	–·001	+·001	1·196		a calm.
			Def. N.	33 37	75	N.W. by N.	1·202	–·001	–·001	1·200		
			Def. S.	34 45	76	N.W. by N.	1·215	–·001	–·001	1·213		W. Burdon, Esq.,
			Def. N.S.	53 20	75	N.W. by N.	1·204	–·001	–·004	1·199		R.N., observer.
20.	–21 12	67 29	Def. N.	33 25	76	W. by N.	1·200	–·013	–·001	1·186		
			Def. S.	34 45	77	W. by N.	1·215	–·013	–·001	1·201		
			Def. N.S.	53 05	79	W. by N.	1·214	–·013	–·005	1·196	1·201	Table steady.
			Def. N.	33 32	81	W. by N.	1·205	–·013	–·002	1·190		
			Def. S.	34 02	81	W. by N.	1·243	–·013	–·002	1·228		W. Burdon, Esq.,
			Def. N.S.	52 55	81	W. by N.	1·223	–·013	–·005	1·205		R.N., observer.

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Thermometer.	Ship's head.	Intensity.	Corrections.		Corrected Intensity.		Remarks.
								Ship's attraction.	Temperature.			
1845. May 21.	−21° 02′	66° 02′	Def. N.	33° 40′	76°	W. by N.	1·201	—·013	—·001	1·187	1·181	Table steady.
			Def. S.	34 40	76	W. by N.	1·216	—·013	—·001	1·202		
			Def. N.S.	53 15	76	W. by N.	1·201	—·013	—·004	1·184		
			wt. 1 gr.	18 22	76	W. by N.	1·175	—·013	+·001	1·163		
			wt. 2 grs.	37 37	76	W. by N.	1·191	—·013	+·001	1·179		
			wt. 2½ grs.	50 20	76	W. by N.	1·182	—·013	+·001	1·170		
23.	−20 31	59 42	Def. N.	33 47	77	W. by N.	1·194	—·013	—·001	1·180	1·171	Very unsteady.
			Def. S.	35 30	77	W. by N.	1·185	—·013	—·001	1·171		
			Def. N.S.	53 55	78	W. by N.	1·179	—·013	—·004	1·162		
27.	−20 05	57 31	Def. N.	34 58	81	Observed on shore.	1·147	....	—·002	1·145	1·156	Lieut. Moore, R.N., observer.
	Port Louis,		Def. S.	35 52	81		1·170	....	—·002	1·168		
	Mauritius.		Def. N.S.	55 32*	81		1·115	....	—·004	1·111*		
			wt. 1 gr.	19 01	81		1·135	....	+·001	1·136		
			wt. 2 grs.	38 12	81		1·175	....	+·001	1·176		
30.	−21 44	53 34	Def. N.	33 27	80	W.S.W. ½ W.	1·208	—·024	—·002	1·182	1·179	Very unsteady.
			Def. S.	34 40	82	W.S.W. ½ W.	1·219	—·024	—·002	1·193		
			Def. N.S.	53 37	82	W.S.W. ½ W.	1·192	—·024	—·005	1·163		
June 2.	−26 25	49 12	Def. N.	34 27	79	N.W. by W.	1·168	—·005	—·002	1·161	1·160	Very unsteady.
			Def. S.	35 47	79	N.W. by W.	1·173	—·005	—·002	1·166		
			Def. N.S.	54 22	79	N.W. by W.	1·161	—·005	—·004	1·152		
4.	−27 12	46 09	Def. N.	34 45	68	W. by S.	1·156	—·024	—·001	1·131	1·129	Unsteady.
			Def. S.	36 20	68	W. by S.	1·152	—·024	—·001	1·127		
			Def. N.S.	54 30	68	W. by S.	1·155	—·024	—·001	1·130		
5.	−28 24	43 00	Def. N.	34 55	74	W.	1·150	—·020	—·001	1·129	1·125	Very unsteady.
			Def. S.	36 30	74	W.	1·145	—·020	—·001	1·124		
			Def. N.S.	54 45	76	W.	1·145	—·020	—·003	1·122		
6.	−28 44	42 01	Def. N.	35 47	73	W.N.W.	1·116	—·009	—·001	1·106	1·117	Very unsteady.
			Def. S.	36 55	76	W.N.W.	1·129	—·009	—·001	1·119		
			Def. N.S.	54 55	78	W.N.W.	1·139	—·009	—·003	1·127		
7.	−28 35	40 24	Def. N.	34 47	73	W. ½ N.	1·156	—·017	—·001	1·138	1·128	Very unsteady.
			Def. S.	36 40	74	W. ½ N.	1·138	—·017	—·001	1·120		
			Def. N.S.	54 47	74	W. ½ N.	1·145	—·017	—·003	1·125		
8.	−28 57	37 52	Def. N.	35 42	72	W.	1·120	—·020	—·001	1·099	1·094	Table steady, nearly calm.
			Def. S.	37 47	76	W.	1·095	—·020	—·001	1·074		
			Def. N.S.	55 10	78	W.	1·128	—·020	—·004	1·104		
			wt. 1 gr.	19 45	80	W.	1·100	—·020	+·002	1·082		
			wt. 2 grs.	40 30	80	W.	1·118	—·020	+·002	1·100		
			wt. 2½ grs.	53 57	82	W.	1·125	—·020	+·002	1·107		
12.	−30 33	33 19	Def. N.	36 17	66	W.N.W.	1·098	—·009	—·001	1·088	1·085	Table unsteady.
			Def. S.	37 40	66	W.N.W.	1·100	—·009	—·001	1·090		
			Def. N.S.	56 15	66	W.N.W.	1·086	—·009	—·001	1·076		
13.	−31 06	31 34	Def. N.	36 27	65	W. by S. ½ S.	1·093	—·026	—·001	1·066	1·061	Table steady.
			Def. S.	37 52	65	W. by S. ½ S.	1·093	—·026	—·001	1·066		
			Def. N.S.	56 32	67	W. by S. ½ S.	1·078	—·026	—·001	1·051		
14.	−33 01	29 36	Def. N.	36 57	71	W.	1·075	—·020	—·001	1·054	1·046	Table unsteady.
			Def. S.	38 35	72	W.	1·067	—·020	—·001	1·046		
			Def. N.S.	56 57	73	W.	1·062	—·020	—·003	1·039		
15.	−34 31	27 04	Def. N.	36 40	74	W. ½ N.	1·085	—·014	—·001	1·070	1·059	Table very unsteady, long heavy swell.
			Def. S.	38 42	76	W. ½ N.	1·063	—·014	—·001	1·048		
			Def. N.S.	56 47	78	W. ½ N.	1·067	—·014	—·004	1·049		
			wt. 1 gr.	19 47	80	W. ½ N.	1·092	—·014	+·001	1·079		
			wt. 2 grs.	45 02	80	W. ½ N.	1·027	—·014	+·001	1·014†		
			wt. 2½ grs.	58 57	82	W. ½ N.	1·063	—·014	+·001	1·050		

* Probably the degree is erroneous; the result is not included in the mean. † Not included.

Observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Thermometer.	Ship's head.	Intensity.	Corrections.		Corrected Intensity.		Remarks.
								Ship's attraction.	Temperature.			
1845.	° ′	° ′		° ′	°							
June 16.	−35 46	23 35	Def. N.	38 00	75	w. by n.	1·042	−·012	−·001	1·029		
			Def. S.	39 17	77	w. by n.	1·043	−·012	−·001	1·030	1·033	Table steady.
			Def. N.S.	57 02	78	w. by n.	1·057	−·012	−·004	1·041		
17.	−35 36	21 40	Def. N.	38 45	67	w.n.w.	1·020	−·007	−·001	1·012		
			Def. S.	39 47	67	w.n.w.	1·026	−·007	−·001	1·018	1·025	Table steady.
			Def. N.S.	57 12	67	w.n.w.	1·053	−·007	−·001	1·045		
18.	−35 07	20 46	Def. N.	38 22	64	w. by s.	1·031	−·019	·000	1·012		
			Def. S.	39 50	63	w. by s.	1·024	−·019	·000	1·005	1·013	Table steady, nearly calm.
			Def. N.S.	57 30	63	w. by s.	1·042	−·019	−·001	1·022		
23.	−34 12	18 26	Def. N.S.	57 01	62	s.	1·060	−·040	·000	1·020		
	At anchor in		Def. N.S.	57 08	66	s.s.w.	1·056	−·037	−·001	1·018		
	Simon's Bay.		Def. N.S.	57 29	68	s.w.	1·042	−·031	−·001	1·010		
			Def. N.S.	57 52	68	w.s.w.	1·030	−·022	−·001	1·007		
			Def. N.S.	58 07	70	w.	1·021	−·014	−·002	1·005		
			Def. N.S.	58 11	70	w.n.w.	1·019	−·003	−·002	1·014		
			Def. N.S.	58 07	82	n.w.	1·020	−·002	−·004	1·014		
			Def. N.S.	58 16	82	n.n.w.	1·018	·000	−·004	1·014		
			Def. N.S.	58 09	83	n.	1·020	+·002	−·005	1·017	1·012	Swinging ship for local attraction.
			Def. N.S.	58 10	84	n.n.e.	1·020	·000	−·005	1·015		
			Def. N.S.	58 09	85	n.e.	1·020	−·002	−·005	1·013		
			Def. N.S.	58 07	85	e.n.e.	1·021	−·003	−·005	1·013		
			Def. N.S.	57 58	86	e.	1·026	−·014	−·005	1·007		
			Def. N.S.	57 53	87	e.s.e.	1·030	−·022	−·005	1·003		
			Def. N.S.	57 30	88	s.e.	1·042	−·031	−·006	1·005		
			Def. N.S.	57 10	90	s.s.e.	1·055	−·037	−·006	1·012		
			Def. N.S.	58 08	68	On shore.	1·021	.. ..	−·001	1·020		In the Dock Yard.
30.	−33 56	18 29	Def. N.	39 31	59		0·992	....	....	0·992		
			Def. S.	40 39	61		1·000	....	....	1·000		
			Def. N.S.	58 16	62		1·016	....	....	1·016		
			wt. 1 gr.	21 38	63		1·004	....	....	1·004		
			wt. 2 grs.	46 31	64		1·001	....	....	1·001		
			wt. 2½ grs.	65 30	65	Observed	0·999	....	....	0·999	1·001	
July 2.	Magnetic Observatory, Cape of Good Hope.		Def. N.	39 22	59	on shore.	0·997	....	....	0·997		
			Def. S.	40 39	60		1·000	....	....	1·000		
			Def. N.S.	58 21	61		1·013	....	....	1·013		
			wt. 1 gr.	22 06	63		0·986	....	....	0·986		
			wt. 2 grs.	46 21	64		1·004	....	....	1·004		
			wt. 2½ grs.	65 30	64		0·999	....	....	0·999		

General Table of the Declinations observed on board Her Majesty's hired Bark "Pagoda."

Date.	Lat.	Long.	No. of observations.	Declination.	Date.	Lat.	Long.	No. of observations.	Declination.
1845.					1845.				
Jan. 10.	−34° 42′	17° 36′	4	+29° 51′	March 28.	−36° 51′	116° 36′	3	+ 4° 31′
11.	−35 26	15 08	4	+28 39	29.	−36 10	116 43	8	+ 4 52
12.	−35 17	14 00	3	+27 15	30.	−35 12	117 41	5	+ 6 20
13.	−35 10	13 25	3	+25 40	31.	−35 28	117 04	1	+ 6 55
15.	−38 43	14 25	1	+25 09	April 11. }	−35 02	117 56	3	+ 5 33*
16.	−39 18	14 28	11	+28 20	14. }				
17.	−40 15	14 35	11	+27 40	21.	−35 10	118 06	1	+ 5 57
19.	−44 45	13 19	4	+26 34	22.	−35 42	115 40	1	+ 5 59
20.	−46 24	13 34	3	+25 54	23.	−35 33	114 42	3	+ 5 41
22.	−48 27	10 51	4	+24 50	24.	−34 18	113 12	4	+ 6 37
23.	−50 45	10 18	8	+23 55	25.	−32 42	111 43	5	+ 6 36
24.	−51 47	9 34	17	+23 37	26.	−30 25	109 07	4	+ 7 20
25.	−52 56	7 53	4	+23 46	27.	−29 20	106 55	2	+ 6 30
26.	−53 52	6 12	12	+21 34	28.	−27 41	106 35	2	+ 6 33
27.	−55 29	5 54	3	+21 23	29.	−26 10	105 16	3	+ 5 30
29.	−59 02	4 09	4	+17 30	30.	−24 07	102 28	2	+ 5 32
31.	−61 12	9 30	10	+20 29	May 1.	−23 58	99 21	4	+ 5 14
Feb. 1.	−62 03	12 45	4	+22 07	2.	−24 01	97 34	4	+ 7 08
2.	−61 54	16 40	8	+23 11	3.	−23 56	95 46	6	+ 6 10
3.	−61 49	19 13	27	+26 16	4.	−24 17	94 06	4	+ 5 31
4.	−62 05	20 58	9	+28 05	5.	−24 05	92 11	1	+ 6 34
5.	−63 18	21 10	6	+28 56	6.	−22 46	90 40	9	+ 5 56
6.	−64 25	25 05	9	+30 24	7.	−21 53	89 42	2	+ 4 23
7.	−65 43	28 33	11	+31 37	8.	−20 46	88 06	5	+ 4 45
9.	−66 26	37 25	3	+35 39	9.	−20 37	85 32	3	+ 5 20
10.	−66 55	38 32	5	+37 43	10.	−20 25	82 32	5	+ 5 08
11.	−67 34	39 41	7	+38 13	11.	−20 36	79 20	7	+ 4 43
12.	−66 41	39 22	3	+37 18	12.	−20 44	78 34	21	+ 5 29
13.	−67 06	40 03	5	+36 59	13.	−20 39	77 45	3	+ 5 22
14.	−67 01	40 30	2	+37 12	14.	−20 28	76 23	3	+ 6 01
16.	−64 52	38 37	5	+36 38	15.	−20 45	73 20	1	+ 5 54
17.	−64 52	40 12	6	+36 54	16.	−20 27	70 49	2	+ 6 35
18.	−64 22	40 49	2	+36 32	17.	−20 34	69 37	2	+ 6 07
19.	−63 57	41 37	3	+37 34	18.	−20 58	68 12	5	+ 8 00
20.	−63 22	45 31	6	+39 39	19.	−21 11	67 54	3	+ 6 34
21.	−63 37	47 01	7	+40 03	20.	−21 12	67 29	2	+ 7 37
22.	−63 43	49 29	2	+39 21	21.	−21 01	66 24	3	+ 7 46
25.	−61 33	53 40	6	+40 30	22.	−20 39	63 01	2	+ 8 27
26.	−61 18	57 41	6	+41 57	23.	−20 30	59 42	3	+ 9 44
27.	−61 04	63 45	4	+45 17	24.	−19 54	57 55	1	+ 9 27
28.	−61 43	69 36	1	+45 51	27.	−20 09	57 31	2	+ 9 44†
March 1.	−62 10	72 25	7	+46 01	29.	−20 50	55 32	2	+11 15
2.	−62 46	76 30	11	+50 35	30.	−21 54	53 00	4	+13 44
4.	−63 05	80 20	1	+52 17	31.	−23 44	51 48	3	+14 22
5.	−61 41	85 20	7	+47 19	June 1.	−25 47	49 40	2	+15 09
6.	−60 50	87 41	3	+47 47	2.	−26 30	49 20	3	+16 23
7.	−61 23	91 26	10	+49 28	4.	−27 12	46 02	5	+20 25
8.	−61 16	91 43	7	+49 02	5.	−28 19	43 07	3	+21 19
9.	−60 46	92 20	6	+48 01	6.	−28 49	42 07	4	+21 57
10.	−60 03	95 15	4	+44 53	7.	−28 36	40 14	5	+22 34
11.	−59 22	100 31	7	+41 02	8.	−28 57	37 49	7	+23 37
12.	−58 31	98 59	1	+39 50	9.	−30 18	35 55	2	+26 29
13.	−58 30	98 32	3	+40 37	11.	−30 30	33 42	6	+27 28
14.	−56 53	101 15	2	+37 37	12.	−30 35	33 13	1	+25 09
15.	−55 42	103 15	3	+32 54	13.	−31 09	31 31	9	+26 46
16.	−54 45	106 17	6	+29 24	14.	−32 54	29 49	4	+28 44
17.	−54 05	108 15	2	+26 34	15.	−34 44	26 50	9	+28 41
18.	−53 12	110 24	6	+21 52	16.	−35 39	23 35	5	+29 26
20.	−49 05	112 47	10	+17 09	17.	−35 40	21 37	2	+29 16
23.	−46 32	115 54	1	+12 02	18.	−35 06	20 46	1	+27 56
24.	−44 59	116 53	2	+ 9 43	19.	−35 08	20 24	2	+28 47
25.	−43 41	116 57	6	+ 7 04	20.	−34 55	19 33	3	+28 57
26.	−41 02	116 42	3	+ 4 10	23.	−34 12	18 27	16	+29 15
27.	−38 40	116 17	4	+ 6 56					

* On shore at King George's Sound. † On shore at Port Louis, Mauritius.

General Table of the Inclinations observed on board Her Majesty's hired Bark "Pagoda."

Date.	Lat.	Long.	Inclination. Fox, F. 1.	Inclination. Fox, C. 9.	Mean.
1844.	° ′	° ′	° ′	° ′	° ′
November 10.	−33 56	18 29	−53 31	*	−53 31*
21.	−33 56	18 29	−53 31	*	
December 19.	−34 12	18 26	−53 50	*	−53 50†
1845. January 7.	−34 12	18 26	*	−53 50	
9.	−34 14	18 32	−53 39	*	−53 39
10.	−34 45	17 48	−52 56	−53 34	−53 15
11.	−35 29	15 09	*	−51 27	−51 27
12.	−35 17	14 00	*	−51 16	−51 16
13.	−35 18	13 26	−51 35	−51 18	−51 27
14.	−37 25	13 24	−51 44	*	−51 44
15.	−38 40	14 27	−52 39	−53 31	−53 05
16.	−39 10	14 40	−54 14	−54 12	−54 13
17.	−40 31	14 23	−55 10	−54 59	−55 05
18.	−42 50	13 00	−55 34	*	−55 34
19.	−44 50	13 19	−56 14	*	−56 14
21.	−49 01	11 28	−56 29	−55 34	−56 02
22.	−48 35	10 51	−56 44	*	−56 44
23.	−50 39	10 22	−57 02	−57 19	−57 11
24.	−51 49	9 33	−57 43	−57 35	−57 39
25.	−53 07	7 43	−57 03	−57 24	−57 14
26.	−53 57	6 05	−57 01	−56 58	−57 00
27.	−55 13	5 53	−57 26	−58 12	−57 49
30.	−60 43	4 00	−59 58	*	−59 58
31.	−61 10	9 05	−61 16	−61 43	−61 30
February 1.	−62 06	12 52	....	−63 17	−63 17
2.	−61 55	16 30	−63 00	−63 55	−63 28
3.	−61 50	19 14	−63 55	−64 44	−64 20
4.	−62 30	20 33	−64 55	−64 25	−64 40
5.	−63 19	21 48	*	−65 35	−65 35
6.	−64 23	24 12	−66 37	−66 41	−66 39
7.	−65 37	28 39	−66 59	−67 56	−67 28
8.	−66 27	30 45	*	−68 31	−68 31
9.	−66 33	36 48	−68 16	−69 22	−68 49
10.	−66 57	38 50	−69 22	−71 07†	−69 22
11.	−67 37	40 00	−69 49	−69 27	−69 38
12.	−67 02	39 53	−70 12	−70 20	−70 16
13.	−66 58	40 12	−69 39	−69 30	−69 35
14.	−66 24	40 01	*	−69 15	−69 15
16.	−64 52	38 37	−68 40	−68 53	−68 47
17.	−64 48	40 12	−68 44	−68 18	−68 31
18.	−64 22	40 49	−68 40	*	−68 40
19.	−63 56	41 35	−69 36	−70 02	−69 49
20.	−63 20	45 44	−70 03	−70 15	−70 09
21.	−63 36	46 46	−70 02	−70 13	−70 08
24.	−62 36	51 40	−69 13	*	−69 13
25.	−61 30	53 44	−70 46	−70 49	−70 48
26.	−61 19	57 34	−72 01	−71 27	−71 44
27.	−61 05	64 12	−73 27	−72 18	−72 53
28.	−61 43	71 08	−74 02	−73 38	−73 50
March 1.	−62 10	72 25	−74 35	−74 33	−74 34
2.	−62 44	76 12	−74 50	−75 05	−74 58
3.	−64 20	79 38	−76 34	−75 57	−76 16
5.	−61 40	84 54	−76 27	−76 58	−76 43
6.	−60 45	88 23	−75 43‡	−77 04	−77 04
7.	−61 22	91 14	−77 35	−77 41	−77 38
8.	−61 10	92 07	−78 42‡	−77 57	−77 57
9.	−60 33	92 30	−77 30	−77 33	−77 32
10.	−60 03	95 50	−77 35	−77 38	−77 37
11.	−59 52	99 40	−79 39	−79 23	−79 31
13.	−57 40	99 23	−78 36	−77 43	−78 10
14.	−56 55	101 30	−78 40	−78 11	−78 26
15.	−55 46	103 12	−78 56	−78 09	−78 33
16.	−54 43	106 10	−78 09	−79 13	−78 41
17.	−54 14	108 10	−78 49	−79 19	−79 04

Date.	Lat.	Long.	Inclination. Fox, F. 1.	Inclination. Fox, C. 9.	Mean.
1845.	° ′	° ′	° ′	° ′	° ′
March 18.	−53 00	110 22	−77 28	−77 39	−77 34
19.	−51 10	111 26	−76 41	−77 36	−77 09
20.	−48 59	112 22	−76 30	−76 04	−76 17
22.	−47 21	115 15	−75 31	−75 32	−75 32
24.	−45 08	116 50	*	−73 27	−73 27
25.	−43 21	116 50	−72 45	−72 10	−72 28
26.	−41 09	116 26	−70 11	−71 14	−70 43
27.	−38 46	116 15	−68 49	−68 04	−68 27
28.	−37 02	116 57	−66 46	−66 21	−66 38
29.	−36 12	116 49	−65 28	−66 00	−65 44
30.	−35 13	117 18	−65 48	−65 24	−65 36
April 7.	−35 02	117 56	−65 11	−64 55§	−65 04‖
11.	−35 02	117 56	−65 11	−64 59¶	
12.	−35 05	117 56	*	−65 14	−65 14
20.	−35 06	117 55	*	−65 59	−65 59
23.	−35 33	114 40	−65 28	−64 54	−65 11
24.	−34 16	113 01	−64 44	*	−64 44
25.	−32 28	111 31	−62 14	−62 22	−62 18
27.	−29 18	106 52	−59 19	−59 30	−59 25
28.	−27 41	106 34	−57 17	−57 26	−57 22
29.	−25 53	105 03	−55 09	−55 05	−55 07
May 1.	−23 59	99 15	−54 28	−53 46	−54 07
2.	−24 01	97 28	−54 03	−54 18	−54 11
3.	−23 55	96 01	−54 16	−54 26	−54 21
4.	−24 17	93 50	*	−54 07	−54 07
5.	−24 02	92 07	*	−52 44	−52 44
6.	−22 47	91 00	−52 49	....	−52 49
7.	−21 47	89 41	−52 17	−51 45	−52 01
8.	−20 42	87 55	−50 57	−51 33	−51 15
9.	−20 38	85 14	−51 14	−51 21	−51 18
10.	−20 26	82 11	−51 39	−51 05	−51 22
11.	−20 36	79 16	−51 50	−51 46	−51 48
12.	−20 44	78 31	−52 03	−52 00	−52 02
13.	−20 39	77 43	−52 00	−51 58	−51 59
14.	−20 29	76 22	−52 20	*	−52 20
16.	−20 27	70 41	−52 51	−52 19	−52 35
17.	−20 34	69 24	*	−53 01	−53 01
18.	−21 07	68 08	−53 10	−53 01	−53 06
19.	−21 11	67 54	−53 02	−53 46	−53 24
20.	−21 12	67 29	−53 39	−53 59	−53 49
21.	−21 02	66 26	−54 03	−53 49	−53 56
22.	−20 40	62 58	*	−53 53	−53 53
23.	−20 31	59 42	−54 09	*	−54 09
27.	−20 09	57 31	−54 14	−53 38	−53 56**
30.	−21 47	53 30	−54 38	−54 51	−54 45
June 2.	−26 25	49 12	−58 36	*	−58 36
3.	−26 26	48 20	*	−58 46	−58 46
4.	−27 13	46 00	−58 44	−58 32	−58 38
5.	−28 13	42 50	−58 52	−58 10	−58 31
6.	−28 44	42 01	−59 01	*	−59 01
7.	−28 35	40 24	−58 54	*	−58 54
8.	−28 57	37 49	−59 08	−59 14	−59 11
11.	−30 27	33 41	*	−56 37	−56 37
12.	−30 33	33 19	−57 19	*	−57 19
13.	−31 06	31 30	−57 28	−57 24	−57 26
14.	−33 01	29 36	−57 34	*	−57 34
15.	−34 31	27 04	−57 06	*	−57 06
16.	−35 46	23 35	−56 08	*	−56 08
17.	−35 38	21 40	−55 18	−55 31	−55 25
18.	−35 07	20 46	−55 08	*	−55 08
23.	−34 12	18 26	−53 37	−53 37	−53 37
Magnetic Observatory, Cape of Good Hope, on the 2nd and 11th of July.			−53 33 −53 25	−53 22 −53 27 −53 37	−53 29

* Magnetic Observatory, Cape of Good Hope.
‡ Probably a wrong degree; omitted in the mean.
‖ King George's Sound.
† Dock Yard, Simon's Bay.
§ Needle A. ¶ Needle B.
** Port Louis, Mauritius.

General Table of the Intensities of the Magnetic Force observed on board Her Majesty's hired Bark "Pagoda."

Date.	Lat.	Long.	Intensity. Fox, F. 1.	Intensity. Fox, C. 9.	Mean.
1844. Dec. 1 and 5.	−33° 56′	18° 29′	0·999*	....	0·999
21.	−34 12	18 26	1·005†	....	1·005
1845. January 10.	−34 45	17 48	0·981	0·985	0·983
11.	−35 29	15 09	....	0·968	0·968
12.	−35 17	14 00	....	0·923	0·923
13.	−35 18	13 26	0·950	0·933	0·942
14.	−37 25	13 24	0·965	....	0·965
15.	−38 40	14 27	1·008	0·978	0·993
16.	−39 10	14 40	0·989	0·964	0·977
17.	−40 31	14 23	0·994	0·984	0·989
18.	−42 50	13 00	0·997	....	0·997
19.	−44 50	13 19	1·007	....	1·007
21.	−49 01	11 28	1·051	1·051	1·051
22.	−48 35	10 51	1·060	....	1·060
23.	−50 39	10 22	1·094	1·093	1·094
24.	−51 49	9 33	1·120	1·109	1·115
25.	−53 07	7 43	1·122	1·134	1·128
26.	−53 57	6 05	1·143	1·141	1·142
27.	−55 13	5 53	1·161	1·143	1·152
30.	−60 43	4 00	1·240	....	1·240
31.	−61 10	9 05	1·285	1·288	1·287
February 1.	−62 06	12 52	....	1·349	1·349
2.	−61 55	16 30	1·331	1·321	1·326
3.	−61 50	19 14	1·334	....	1·334
4.	−62 30	20 33	1·353	1·347	1·350
5.	−63 19	21 48	....	1·362	1·362
6.	−64 23	24 12	1·401	1·398	1·400
7.	−65 37	28 39	1·432	1·432	1·432
8.	−66 27	30 45	....	1·448	1·448
9.	−66 33	36 48	1·482	1·470	1·476
10.	−66 57	38 50	1·491	1·483	1·487
11.	−67 37	40 00	1·519	1·496	1·508
12.	−67 02	39 53	1·494	1·496	1·495
13.	−66 58	40 12	1·499	1·490	1·495
14.	−66 24	40 01	....	1·494	1·494
16.	−64 52	38 37	1·470	1·450	1·460
17.	−64 48	40 12	1·463	1·482	1·473
18.	−64 22	40 49	1·460	....	1·460
19.	−63 56	41 35	1·416	1·453	1·434
20.	−63 20	45 44	1·437	1·462	1·450
21.	−63 36	46 46	1·457	1·470	1·464
24.	−62 36	51 40	1·466	....	1·466
25.	−61 30	53 44	1·476	1·498	1·487
26.	−61 19	57 34	1·535	1·506	1·521
27.	−61 05	64 12	1·553	1·560	1·557
28.	−61 43	71 08	1·604	1·605	1·605
March 1.	−62 10	72 25	1·657	1·642	1·650
2.	−62 44	76 12	1·656	1·653	1·655
3.	−64 20	79 38	1·706	1·678	1·692
5.	−61 40	84 54	1·689	1·730	1·710
6.	−60 45	88 23	1·729	1·747	1·738
7.	−61 22	91 14	1·759	1·749	1·754
8.	−61 10	92 07	1·762	1·758	1·760
9.	−60 33	92 30	1·745	1·750	1·748
10.	−60 03	95 50	1·798	1·770	1·784
11.	−59 52	99 40	1·772	1·836	1·804
13.	−57 40	99 23	1·968‡	1·813	1·813
14.	−56 55	101 30	1·786	1·802	1·794
15.	−55 46	103 12	1·816	1·815	1·816
16.	−54 43	106 10	1·801	1·817	1·809
17.	−54 14	108 10	1·816	1·821	1·819
18.	−53 00	110 22	1·814	1·825	1·820

Date.	Lat.	Long.	Intensity. Fox, F. 1.	Intensity. Fox, C. 9.	Mean.
1845. March 19.	−51° 10′	111° 26′	1·787	....	1·787
20.	−48 59	112 22	1·798	1·821	1·810
22.	−47 21	115 15	1·825	1·842	1·834
24.	−45 08	116 50	....	1·820	1·820
25.	−43 21	116 50	1·760	1·804	1·782
26.	−41 09	116 26	1·746	1·758	1·752
27.	−38 46	116 15	1·738	1·722	1 730
28.	−37 02	116 57	1·695	1·677	1·686
29.	−36 12	116 49	1·673	1·670	1·672
30.	−35 13	117 18	1·702	1·694	1·698
April 7.	−35 02	117 56	1·688	1·688	1·688§
11.	−35 02	117 56	1·688	....	
12.	−35 05	117 56	....	1·688	
23.	−35 33	114 40	1·688	1·672	1·680
24.	−34 16	113 01	1·641	....	1·641
25.	−32 28	111 31	1·613	1·573	1·593
27.	−29 18	106 52	1·553	1·499	1·526
28.	−27 41	106 34	1·490	1·478	1·484
29.	−25 53	105 03	1·470	1·447	1·459
May 1.	−23 59	99 15	1·367	1·381	1·374
2.	−24 01	97 28	1·379	1·381	1·380
3.	−23 55	96 01	1·365	1·377	1·371
4.	−24 17	93 50	....	1·352	1·352
5.	−24 02	92 07	....	1·367	1·367
6.	−22 47	91 00	1·324	....	1·324
7.	−21 47	89 41	1·326	1·314	1·320
8.	−20 42	87 55	1·294	1·298	1·296
9.	−20 38	85 14	1·265	1·263	1·264
10.	−20 26	82 11	1·257	1·248	1·253
11.	−20 36	79 16	1·247	1·213	1·230
12.	−20 44	78 31	1·238	1·234	1·236
13.	−20 39	77 43	1·237	1·233	1·235
14.	−20 29	76 22	1·222	....	1·222
16.	−20 27	70 41	1·199	1·205	1·202
17.	−20 34	69 24	....	1·210	1·210
18.	−21 07	68 08	1·191	....	1·191
19.	−21 11	67 54	1·203	1·206	1·205
20.	−21 12	67 29	1·201	1·190	1·196
21.	−21 02	66 26	1·181	1·178	1·180
22.	−20 40	62 58	....	1·173	1·173
23.	−20 31	59 42	1·171	....	1·171
27.	−20 09	57 31	1·156	1·156	1·156‖
30.	−21 47	53 30	1·179	1·161	1·170
June 2.	−26 25	49 12	1·160	....	1·160
3.	−26 26	48 20	....	1·164	1·164
4.	−27 13	46 00	1·129	1·159	1·144
5.	−28 13	42 50	1·125	....	1·125
6.	−28 44	42 01	1·117	....	1·117
7.	−28 35	40 24	1·128	....	1·128
8.	−28 57	37 49	1·094	1·111	1·103
11.	−30 27	33 41	....	1·105	1·105
12.	−30 33	33 19	1·085	....	1·085
13.	−31 06	31 30	1·061	1·063	1·062
14.	−33 01	29 36	1·046	....	1·046
15.	−34 31	27 04	1·059	....	1·059
16.	−35 46	23 35	1·033	....	1·033
17.	−35 38	21 40	1·025	1·033	1·029
18.	−35 07	20 46	1·013	....	1·013
23.	−34 12	18 26	1·012	1·001	1·007¶
Magnetic Observatory, Cape of Good Hope, 2nd and 11th of July.			1·001	1·000	1·000

* Observed on shore, Magnetic Observatory, Cape of Good Hope.

† Observed on shore, Dock-yard, Simon's Bay.

‡ Not included in the mean.

§ King George's Sound; observed on shore.

‖ Port Louis, Mauritius; observed on shore.

¶ Simon's Bay, on board.

Observations of the Magnetic Inclination between the Cape of Good Hope and Van Diemen Island, by Lieut. Alexander Smith, R.N.

Date.	Lat.	Long.	Corrected Inclination.	Date.	Lat.	Long.	Corrected Inclination.
1844.				1844.			
July 29.	−38° 00′	4° 20′	−52° 00′	Aug. 20.	−38° 25′	76° 44′	−66° 54′
30.	−38 28	7 45	−53 03	21.	−38 48	77 50	−67 14
31.	−39 06	12 00	−55 42	22.	−39 04	79 45	−67 17
August 1.	−39 42	15 44	−57 06	23.	−39 58	84 00	−67 43
2.	−39 33	23 05	−59 32	24.	−40 06	87 00	−68 13
4.	−39 33	26 52	−61 47	25.	−40 06	90 52	−68 41
5.	−39 50	28 36	−62 08	26.	−40 02	95 10	−69 08
6.	−40 01	32 22	−62 56	27.	−39 52	99 22	−69 00
7.	−40 32	36 40	−64 09	28.	−39 54	102 00	−69 00
8.	−41 06	41 40	−64 42	29.	−40 08	105 55	−69 22
9.	−41 00	46 13	−65 19	30.	−40 31	109 06	−70 02
10.	−40 43	49 12	−66 08	31.	−41 16	113 25	−70 30
11.	−40 56	53 30	−66 25	Sept. 1.	−41 54	117 40	−71 20
13.	−39 34	60 55	−67 27	1.	−41 58	119 00	−71 33
14.	....	......	−67 18	2.	−42 17	122 30	−71 45
15.	−39 00	65 44	−67 19	3.	−42 35	125 40	−72 08
16.	−38 31	68 45	−66 45	4.	−43 00	129 36	−72 08
17.	−38 22	70 10	−67 06	5.	−43 16	133 44	−72 13
18.	−38 08	73 35	−66 45	6.	−43 28	137 10	−71 55
19.	−38 10	75 22	−66 42	7.	−44 06	141 37	−72 14

Observations of the Magnetic Force between the Cape of Good Hope and Van Diemen Island, by Lieut. Alexander Smith, R.N.

Date.	Lat.	Long.	Method employed.	Angle of deflection.	Thermometer.	Ship's head.	Intensity. Hobarton = 1·800.		Remarks.
1844.									
July 30.	−38° 28′	27° 45′	wt. 2 grs.	20° 13′	52°	S.E. ½ E.	0·953	0·953	
Aug. 5.	−39 50	28 36	wt. 2 grs.	17 04	60	S.E. by E.	1·121	1·117	
	−39 50	28 36	wt. 3 grs.	26 35	59	S.E. by E.	1·113		
9.	−41 00	46 13	wt. 2 grs.	14 50	60	E. ½ S.	1·288	1·288	
	−41 00	46 13	wt. 3 grs.	22 46	61	E. ½ S.	1·289		
15.	−39 00	65 44	wt. 2 grs.	13 35	47	S.E. by E.	1·403	1·383	Much motion.
	−39 00	65 44	wt. 3 grs.	21 26	44	S.E. by E.	1·364		
18.	−38 08	73 35	wt. 2 grs.	12 57	58	E.	1·471	1·454	Smooth water.
	−38 08	73 35	wt. 3 grs.	20 18	59	E.	1·437		
19.	−38 10	75 22	wt. 2 grs.	13 28	66	S.E. ½ E.	1·415	1·435	Smooth.
	−38 10	75 22	wt. 3 grs.	20 02	66	S.E. ½ E.	1·456		
24.	−40 06	87 00	wt. 2 grs.	12 14	64	E.S.E.	1·555	1·597	
	−40 06	87 00	wt. 3 grs.	17 42	60	E.S.E.	1·640		
28.	−39 54	102 00	wt. 2 grs.	11 13	51	E.S.E.	1·694	1·724	
	−39 54	102 00	wt. 3 grs.	16 31	51	E.S.E.	1·754		
30.	−40 31	109 06	wt. 2 grs.	11 04	58	E.S.E.	1·717	1·751	
	−40 31	109 06	wt. 3 grs.	16 14	59	E.S.E.	1·785		
Sept 3.	−42 35	125 40	wt. 2 grs.	10 04	56	E. by S.	1·886	1·894	
	−42 35	125 40	wt. 3 grs.	15 12	55	E. by S.	1·902		
5.	−43 14	133 22	wt. 2 grs.	10 21	49	E. by S.	1·834	1·869	
	−43 14	133 22	wt. 3 grs.	15 11	48	E. by S.	1·904		
6.	−43 28	137 10	wt. 2 grs.	10 06	51	E. ½ S.	1·879	1·866	
	−43 28	137 10	wt. 3 grs.	15 36	51	E. ½ S.	1·854		
Oct. 2.	−42 52	147 24	wt. 2 grs.	10 33	54	On shore.	1·800	1·800	Hobarton: Magnetic Observatory.
	−42 52	147 24	wt. 3 grs.	16 05	54		1·800		

Hobarton is taken as the base station; no correction has been applied for the effect of the ship's iron. In the results entered in the map of the Magnetic Force from Lieut. Smith's observations on the 24th, 28th, and 30th of August, the determinations with 2 grains only have been used; those with 3 grains are so discordant with other results as necessarily to indicate an error in them.

Observations of the Magnetic Inclination between Van Diemen Island and the Cape of Good Hope, by Lieut. JOSEPH DAYMAN, R.N.

Date.	Lat.	Long.	Corrected Inclination.	Date.	Lat.	Long.	Corrected Inclination.
1844.	° ′	° ′	° ′	1845.	° ′	° ′	° ′
Dec. 6.	Hobarton Observatory.		−70 40	Jan. 25.	−24 00	99 33	−54 20
16.	−44 48	144 51	−71 36	27.	−23 11	95 40	−53 44
17.	−44 30	143 56	−70 50	28.	−22 54	93 48	−53 26
18.	−44 34	142 51	−71 31	29.	−22 19	91 16	−53 11
19.	−44 34	139 37	−73 11	30.	−22 17	89 57	−53 11
20.	−43 21	138 37	−70 33	31.	−22 11	86 30	−53 20
21.	−42 24	137 18	−70 42	Feb. 1.	−22 08	84 17	−53 52
23.	−41 46	133 26	−70 40	3.	−22 34	80 10	−54 23
24.	−42 02	131 31	−72 03?	4.	−22 35	78 08	−54 26
26.	−41 24	129 30	−70 22	5.	−22 38	76 10	−54 45
27.	−42 08	128 45	−71 11	6.	−22 28	74 18	−54 41
28.	−40 05	128 23	−70 08	7.	−22 33	72 00	−55 04
30.	−39 25	124 04	−69 40	8.	−22 41	69 54	−55 54
31.	−38 00	123 38	−68 21	10.	−23 52	64 59	−56 52
1845.				11.	−24 23	62 54	−57 57
Jan. 1.	−38 21	122 46	−67 27	12.	−24 50	61 11	−58 15
2.	−37 52	122 29	−67 39	13.	−24 43	59 46	−57 59
3.	−37 14	121 58	−67 07	14.	−24 36	58 37	−58 17
4.	−37 13	120 40	−68 06	15.	−24 45	57 03	−59 13
6.	−36 28	118 57	−67 08	17.	−25 13	51 29	−58 34
7.	−35 22	117 46	−65 53	18.	−25 42	49 06	−58 43
9.	−36 42	118 35	−67 03	19.	−26 54	45 47	−58 41
10.	−36 58	117 38	−67 19	20.	−28 15	42 18	−59 37
11.	−36 06	116 42	−66 27	21.	−29 21	39 06	−60 01
13.	−36 24	115 33	−66 44	22.	−30 10	36 17	−59 08
14.	−37 00	115 10	−66 35	24.	−31 19	32 21	−58 32
15.	−35 46	114 14	−65 48	25.	−32 17	29 34	−58 16
16.	−34 58	112 59	−65 16	26.	−34 02	26 53	−57 23
17.	−33 47	111 04	−63 23	27.	−34 35	25 31	−56 45
18.	−32 37	108 24	−62 18	28.	−34 36	25 23	−56 35
20.	−29 40	105 28	−59 37	March 1.	−34 40	24 16	−56 32
21.	−28 04	105 06	−58 33	3.	−34 04	22 45	−56 43
22.	−26 44	104 26	−56 54	4.	−34 29	21 44	−55 36
23.	−25 52	102 58	−55 50	5.	−34 48	19 33	−54 50
24.	−24 50	101 31	−54 44				

Observations of the Magnetic Force between Van Diemen Island and the Cape of Good Hope, by Lieut. Joseph Dayman, R.N.

Date.	Lat.	Long.	Weights.	Angle of deflection.	Thermo-meter.	Ship's head.	Intensity.	Correction for ship's attraction.	Corrected Intensity. Hobarton =1·800.	Remarks.
1844.	° ′	° ′	grs.	° ′	°					
Dec. 6.	−42 52	147 24	2	10 43	71	On shore.	1·800	………	1·800	Magnetic Observatory, Hobarton.
	−42 52	147 24	3	16 11	71		1·800			
16.	−44 48	144 51	2	10 21	55	w. by s.	1·863	−·041	1·827	
	−44 48	144 51	3	15 32	55	w. by s.	1·873			
17.	−44 30	143 56	2	10 31	67	w. by s.	1·834	−·041	1·815	
	−44 30	143 56	3	15 29	67	w. by s.	1·879			
18.	−44 34	142 51	2	10 20	69	w. by s.	1·866	−·041	1·818	
	−44 34	142 51	3	15 44	70	w. by s.	1·851			
19.	−44 34	139 37	3	15 18	63	s.w. by s.	1·901	−·053	1·848	
21.	−42 24	137 18	2	10 29	69	w.	1·840	−·037	1·828	
	−42 24	137 18	3	15 24	70	w.	1·889			
23.	−41 46	133 26	2	10 32	58	n.	1·831	−·020	1·846	
	−41 46	133 26	3	15 18	57	n.	1·901			
28.	−40 05	128 23	2	10 05	63	n.w. by n.	1·912	−·020	1·856	A long heavy swell.
	−40 05	128 23	3	15 49	63	n.w. by n.	1·840			
30.	−39 25	124 04	2	10 38	65	n. by w.	1·814	−·020	1·793	A long heavy swell.
	−39 25	124 04	3	16 04	65	n. by w.	1·813			
31.	−38 00	123 38	2	10 25	62	n.n.w.	1·852	−·020	1·799	A long heavy swell.
	−38 00	123 38	3	16 19	62	n.n.w.	1·786			
1845.										
Jan. 1.	−38 21	122 46	2	10 49	71	n.w. by w.	1·783	−·025	1·777	
	−38 21	122 46	3	15 59	72	n.w. by w.	1·822			
3.	−37 14	124 58	2	10 55	69	n.w.	1·767	−·020	1·771	
	−37 14	124 58	3	16 03	69	n.w.	1·815			
6.	−36 28	118 57	2	11 11	67	n.n.w.	1·725	−·020	1·716	
	−36 28	118 57	3	16 41	67	n.n.w.	1·747			
7.	−35 22	117 46	2	11 04	65	n.n.w. ½ w.	1·743	−·020	1·722	
	−35 22	117 46	3	16 44	64	n.n.w. ½ w.	1·742			
11.	−36 06	116 42	2	10 55	68	s.s.w.	1·767	−·055	1·715	
	−36 06	116 42	3	16 26	68	s.s.w.	1·773			
16.	−34 58	112 59	2	11 24	66	n.w.	1·693	−·012	1·686	
	−34 58	112 59	3	17 07	66	n.w.	1·704			
17.	−33 47	111 04	2	11 54	67	n.w. by w.	1·623	−·017	1·609	
	−33 47	111 04	3	17 53	67	n.w. by w.	1·629			
18.	−33 37	108 24	2	11 57	69	n.w. by w.	1·616	−·017	1·603	
	−33 37	108 24	3	17 59	69	n.w. by w.	1·624			
20.	−29 40	105 28	2	12 30	72	n.w. ½ n.	1·546	−·007	1·537	
	−29 40	105 28	3	18 58	72	n.w. ½ n.	1·543			
21.	−28 04	105 06	2	13 02	73	n.	1·484	−·004	1·493	
	−28 04	105 06	3	19 24	73	n.	1·510			
22.	−26 44	104 26	2	13 03	76	n.w.	1·483	−·007	1·466	
	−26 44	104 26	3	20 05	76	n.w.	1·462			
23.	−25 52	102 58	2	13 39	75	n.w.	1·418	−·007	1·421	
	−25 52	102 58	3	20 24	75	n.w.	1·439			
24.	−24 50	101 31	2	13 31	76	n.w.	1·432	−·006	1·415	
	−24 50	101 31	3	20 51	76	n.w.	1·410			
25.	−24 00	99 33	2	13 30	75	w.n.w.	1·435	−·010	1·407	
	−24 00	99 33	3	21 02	75	w.n.w.	1·400			
27.	−23 11	95 40	2	14 22	78	w. by n. ½ n.	1·350	−·012	1·334	
	−23 11	95 40	3	21 58	78	w. by n. ½ n.	1·342			
28.	−22 54	93 48	2	14 16	78	w. by n. ½ n.	1·360	−·012	1·337	
	−22 54	93 48	3	22 03	79	w. by n. ½ n.	1·338			
29.	−22 19	91 16	2	15 02	77	w. ½ n.	1·291	−·017	1·277	
	−22 19	91 16	3	22 46	77	w. ½ n.	1·297			
30.	−22 17	89 57	2	14 58	80	w. ½ n.	1·296	−·017	1·288	
	−22 17	89 57	3	22 28	81	w. ½ n.	1·314			
31.	−22 11	86 30	2	15 11	80	w. ½ n.	1·278	−·017	1·274	
	−22 11	86 30	3	22 38	80	w. ½ n.	1·304			

Lieut. DAYMAN's observations of the Magnetic Force. (Continued.)

Date.	Lat.	Long.	Weights.	Angle of deflection.	Thermometer.	Ship's head.	Intensity.	Correction for ship's attraction.	Corrected Intensity. Hobarton = 1·800.	Remarks.
1845.	° ′	° ′	grs.	° ′	°					
Feb. 1.	−22 08	84 17	2	15 13	81	W. ½ N.	1·275	−·017	1·251	
	−22 08	84 17	3	23 25	81	W. ½ N.	1·262			
3.	−22 34	80 10	2	15 16	83	W. ¼ N.	1·272	−·019	1·261	
	−22 34	80 10	3	22 55	83	W. ¼ N.	1·288			
4.	−22 35	78 08	2	15 42	83	W. ¾ N.	1·237	−·015	1·237	
	−22 35	78 08	3	23 20	83	W. ¾ N.	1·267			
5.	−22 38	76 10	2	15 31	82	W. ¾ N.	1·252	−·015	1·236	
	−22 38	76 10	3	23 41	82	W. ¾ N.	1·250			
6.	−22 28	74 18	2	15 50	82	W. ¾ N.	1·227	−·015	1·216	
	−22 28	74 18	3	23 58	82	W. ¾ N.	1·236			
7.	−22 33	72 20	2	15 49	81	W. ½ N.	1·229	−·016	1·211	
	−22 33	72 20	3	24 11	81	W. ½ N.	1·225			
8.	−22 41	69 54	2	15 38	81	W.	1·240	−·018	1·215	
	−22 41	69 54	3	24 13	81	W.	1·223			
10.	−23 52	64 59	2	15 58	84	W. ½ S.	1·217	−·022	1·196	
	−23 52	64 59	3	24 20	84	W. ½ S.	1·218			
11.	−24 23	62 54	2	16 13	83	W. ½ S.	1·199	−·022	1·177	
	−24 23	62 54	3	24 44	83	W. ½ S.	1·199			
12.	−24 50	61 11	2	16 01	84	W. ½ N.	1·214	−·018	1·197	
	−24 50	61 11	3	24 22	84	W. ½ N.	1·216			
13.	−24 43	59 46	2	16 17	85	W. by N. ½ N.	1·194	−·011	1·184	
	−24 43	59 46	3	24 47	85	W. by N. ½ N.	1·197			
14.	−24 36	58 37	2	16 23	85	W. by N. ½ N.	1·187	−·011	1·178	
	−24 36	58 37	3	24 55	84	W. by N. ½ N.	1·191			
17.	−25 13	51 29	2	16 46	84	W. ½ N.	1·160	−·017	1·139	
	−25 13	51 29	3	25 49	84	W. ½ N.	1·152			
18.	−25 42	49 06	2	17 09	82	W.	1·135	−·020	1·114	
	−25 42	49 06	3	26 16	81	W.	1·133			
20.	−28 15	42 18	2	17 43	81	W. ½ S.	1·100	−·022	1·086	
	−28 15	42 18	3	26 44	81	W. ½ S.	1·116			
21.	−29 21	39 06	2	17 46	81	W.	1·097	−·020	1·081	
	−29 21	39 06	3	26 59	81	W.	1·106			
22.	−30 10	36 17	2	17 55	82	W. ¼ N.	1·088	−·018	1·076	
	−30 10	36 17	3	27 07	82	W. ¼ N.	1·101			
24.	−31 19	32 21	2	18 29	83	W. ½ N.	1·056	−·016	1·046	
	−31 19	32 21	3	28 01	83	W. ½ N.	1·068			
25.	−32 17	29 34	2	18 59	82	W. ¾ N.	1·029	−·014	1·026	
	−32 17	29 34	3	28 28	82	W. ¾ N.	1·052			
26.	−34 02	26 53	2	18 57	74	W.	1·030	−·018	1·012	
	−34 02	26 53	3	28 37	74	S.W.	1·047	−·035		
28.	−34 36	25 23	2	18 38	71	S.W. ½ W.	1·047	−·030	1·021	
	−34 36	25 23	3	28 22	71	S.W. ½ W.	1·056			
Mar. 1.	−34 40	24 16	2	19 27	79	W.N.W.	1·005	−·007	1·004	
	−34 40	24 16	3	29 35	79	W.N.W.	1·016			
5.	−34 48	19 33	2	19 51	71	N.W. ½ N.	0·986	·000	0·984	
	−34 48	19 33	3	30 46	70	N.W. ½ N.	0·981			

Observations of the Magnetic Declination, made on board Her Majesty's Ship Erebus, by Captain Sir James Clark Ross, between the Cape of Good Hope and Van Diemen Island.

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.		Remarks.
1840.	° ′	° ′		° ′		° ′	° ′	° ′	° ′	
April 8.	−35 52	18 41	T.	+28 28	W.		+2 05	+30 33		
			T.	+31 52	E.S.E.		−2 13	+29 39		
			O.	+31 50	E.S.E.	−53 30	−2 13	+29 37	+30 08	Compass C. H. used in all the following observations; no index error.
			T.	+32 13	S.E. by E.		−2 07	+30 06		
			S.	+30 44	S.		0 00	+30 44		
	−36 11	18 35	R.	+31 50	S.E. ½ S.	−53 40	−1 45	+30 05	+30 05	
10.	−36 20	20 28	T.	+31 39	S.E. ½ S.	−55 00	−1 48	+29 51	+30 15	
	−36 12	20 55	T.	+32 02	S.S.E. ½ E.		−1 23	+30 39		
11.	−36 21	21 14	S.	+30 03	S.W.		+2 00	+32 03		
			O.	+30 41	S. by W.		+0 37	+31 18		
			T.	+29 56	S. by W.		+0 37	+30 33		
			T.	+30 26	S.		0 00	+30 26		
			S.	+30 17	S.		0 00	+30 17		
	−36 28	21 15	T.	+30 20	S.		0 00	+30 20		
			R.	+30 14	S.	−55 30	0 00	+30 14	+30 40	
			T.	+30 19	S. ½ E.		−0 19	+30 00		
			O.	+31 00	S. ½ E.		−0 19	+30 41		
			S.	+30 41	S. ½ E.		−0 19	+30 22		
			T.	+31 11	S. ½ E.		−0 19	+30 52		
			R.	+31 29	S.		0 00	+31 29		
			T.	+31 02	S. ½ E.		−0 19	+30 43		
			R.	+30 01	S.		0 00	+30 01		
12.	−37 10	21 31	T.	+31 53	S. ½ W.		+0 19	+32 12		
			T.	+32 09	S. ½ E.		−0 19	+31 50		
			T.	+32 10	S. by E.		−0 38	+31 32		
			T.	+31 50	S. by E.	−56 00	−0 38	+31 12	+30 51	
			O.	+31 09	S. by E.		−0 38	+30 31		
			S.	+31 16	S. by E.		−0 38	+30 38		
			T.	+31 14	S. by E.		−0 38	+30 36		
	−37 27	21 20	R.	+28 57	S. by E.		−0 38	+28 19		
13.	−38 11	21 27	S.	+32 43	S.E. ½ E.		−2 16	+30 27		
	−38 20	21 12	T.	+31 10	S.W. by W.		+2 23	+33 33		
			T.	+30 04	S.W.	−57 30	+2 09	+32 13	+32 10	
			T.	+30 20	S.W.		+2 09	+32 29		
14.	−39 55	20 35	T.	+29 51	S.S.W.	−59 30	+1 18	+31 09	+31 09	
15.	−41 00	22 01	T.	+32 30	S.E. by S.	−59 40	−2 04	+30 26	+29 51	
	−41 15	22 22	S.	+31 20	S.E. by S.		−2 04	+29 16		
16.	−41 24	24 32	T.	+32 09	S.S.E. ½ E.		−1 46	+30 23		
			T.	+32 35	S.E. ½ S.		−2 17	+30 18		
			S.	+31 00	S.E. by S.	−62 00	−2 03	+28 57	+30 25	
	−41 32	25 31	T.	+32 45	S.S.E. ½ E.		−1 46	+30 59		
			R.	+32 41	S.S.E.		−1 24	+31 17		
	−41 28	25 39	R.	+32 00	S.S.E.		−1 24	+30 36		
17.	−41 50	26 24	S.	+31 48	S.S.E.	−62 10	−1 26	+30 22	+31 49	
			T.	+34 43	S.S.E.		−1 26	+33 17		
18.	−42 54	28 13	T.	+34 27	S.S.E.		−1 26	+33 01		
			S.	+34 43	S.S.E.	−62 30	−1 26	+33 17	+33 37	
			O.	+35 58	S.S.E.		−1 26	+34 32		
"	−43 24	29 19	R.	+33 58	S.S.E.	−62 40	−1 26	+32 32	+32 43	
			T.	+33 39	S. by E.		−0 45	+32 54		
25.	−46 31	48 03	R.	+35 44	S.E.	−67 00	−3 03	+32 41	+32 41	
28.	−46 34	52 43	T.	+31 44	N.W.	−67 30	+2 12	+33 56	+33 28	
			T.	+31 53	N.N.W.		+1 07	+33 00		

Observations of Declination. (Continued.)

Date.	Lat.	Long.	Observer.	Declination observed.	Ship's head.	Inclination.	Correction for ship's attraction.	Corrected Declination.		Remarks.
1840.	° ′	° ′		° ′		° ′	° ′	° ′	° ′	
April 30.	−46 32	52 01	T.	+31 40	N. by E. ½ E.	−67 30	+0 53	+32 33	+33 16	
May 1.	−46 32	52 01	R.	+37 06	S.E.	−67 30	−3 07	+33 59		
2.	−47 03	56 17	S.	+36 34	S.E.		−3 07	+33 27		
			T.	+33 48	S.E.	−67 50	−3 07	+30 41	+31 32	
		56 28	R.	+33 34	S.E.		−3 07	+30 27		
4.	−47 45	62 27	T.	+32 21	S.E.	−68 30	−3 15	+29 06	+29 00	
			S.	+32 10	S.E.		−3 15	+28 55		
July 27.	−47 18	93 36	R.	+30 00	S.E. by E. ½ E.					
			R.	+31 50	S.E. by E. ½ E.					
			R.	+30 32	S.E. by E. ½ E.	−72 30	−4 41	+25 38		
			R.	+29 39	S.E. by E. ½ E.					
			R.	+29 34	S.E. by E. ½ E.					
31.	−47 34	105 47	T.	+24 09	S.E. by E. ½ E.	−74 10	−5 10	+18 59		
Aug. 2.	−47 45	113 49	T.	+16 39	E. by S. ½ S.	−75 10	−5 49	+11 29		
			T.	+17 58	E. by S. ½ S.					
4.	−47 40	121 50	R.	+15 26	E. ½ S.					
			R.	+15 11	E. ½ S.	−75 30	−5 51	+ 9 34		
			R.	+15 39	E. ½ S.					
7.	−46 36	131 48	T.	+ 1 58	E. ½ N.		−5 35			
			T.	+ 3 44	E. by N.		−5 27			
			T.	+ 3 08	E. ½ N.		−5 35			
			T.	+ 5 43	E. ½ N.		−5 35			
			R.	+ 5 58	E.	−75 00	−5 43	− 1 00		
			R.	+ 6 30	E.		−5 43			
			R.	+ 4 29	E.		−5 43			
			R.	+ 5 16	E.		−5 43			
	−46 13	132 00	R.	+ 2 09	E.		−5 43			
	−46 06	132 12	R.	+ 6 17	E. ½ N.		−5 35			
			R.	+ 6 53	E. ½ N.	−75 00	−5 35	− 0 34		
			R.	+ 7 25	E. ½ N.		−5 35			
			R.	− 3 06	N.		0 00			
10.	−44 23	141 11	T.	− 4 19	E.N.E.					
			R.	− 3 12	E.N.E.					
			T.	− 3 12	E.N.E.					
			R.	− 4 01	E.N.E.	−73 00	−4 20	− 7 52		
			T.	− 3 39	E.N.E.					
			R.	− 4 24	E.N.E.					
			T.	− 2 01	E.N.E.					

The observers are distinguished by their initials as follows:—

R., Sir James Ross; S., Lieut. Sibbald; T., Mr. Tucker, Master; O., Mr. Oakley, Mate.

Observations of the Magnetic Inclination taken on board Her Majesty's Ship Erebus, by Captain Sir James Clark Ross, with Needle F. 1., between the Cape of Good Hope and Kerguelen Island.

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.	Remarks.
1840.	° ′	° ′		° ′		′	′	° ′	
April 7.	−35 14	18 27	Direct.	−54 23	S. by E.	−04	−2·0	−54 32	
			S.	−54 30					
8.	−35 48	18 47	Direct.	−54 34	E.S.E.	+23	−2·0	−54 18	
			S.	−54 39					
			Direct.	−54 38	W. by S.				
			S.	−54 47					
9.	−36 00	19 00	Direct.	−55 42		+34	−2·0	−55 24	
			S.	−56 10					
10.	−36 07	20 55	Direct.	−55 49	S.E. by S.	+02	−2·0	−55 50	
			S.	−55 51					
11.	−36 29	21 16	Direct.	−55 30	S.	−10	−2·0	−55 38	
			S.	−55 36					
			S.N.	−55 26					
			N.	−55 14					
12.	−37 19	21 37	Direct.	−55 27	S.	−10	−2·0	−56 03	
			S.	−56 01					
			Direct.	−55 42					
			S.	−56 11					
			Direct.	−55 56					
13.	−38 11	22 00	Direct.	−55 41	W.S.W.	+22	−2·0	−55 35	Much motion.
			S.	−56 09					
14.	−40 05	20 38	Direct.	−56 27	S.S.E.	−08	−2·0	−56 33	
			S.	−56 19					
15.	−40 29	22 22	Direct.	−57 13	S.E. by S.	−06	−2·0	−57 28	
			S.	−57 28					
16.	−41 24	25 00	Direct.	−58 00	S.E. by S.	−08	−2·0	−58 21	
			S.	−58 24					
			S.N.	−58 11					
			N.	−58 11					
17.	−41 47	26 38	Direct.	−58 22	S.S.E.	−15	−2·0	−58 43	
			S.	−58 31					
18.	−43 02	28 36	Direct.	−59 01	S.S.E.	−19	−2·0	−59 31	
			S.	−59 20					
	−43 07	28 43	S.N.	−59 20		−20	−2·0	−59 37	
			N.	−59 21					
			Direct.	−59 05					
19.	−44 19	31 06	Direct.	−60 30	S. by E.	−29	−2·0	−60 52	
			S.	−60 13					
20.	−45 40	34 08	Direct.	−61 41	S.S.E.	−30	−2·0	−62 23	
			S.	−62 01					
21.	−46 59	37 14	Direct.	−63 28	S.E. by S.	−28	−2·0	−64 00	
			S.	−63 32					
22.	−47 00	38 14	Direct.	−63 52	S.E. by S.	−29	−2·0	−64 30	
			S.	−64 06					
23.	−46 46	42 23	Direct.	−64 59	S.E. by S.	−32	−2·0	−65 47	Much motion.
			S.	−65 32					
			Direct.	−65 09					
24.	−47 01	46 10	Direct.	−66 18	S.E. ½ E.	−15	−2·0	−66 36	Very steady.
			S.	−66 20					
26.	−46 41	50 52	Direct.	−67 00	S.E. by S.	−36	−2·0	−67 41	
			S.	−67 06					
28.	−46 28	52 31	Direct.	−67 31	W.S.W.	+03	−2·0	−67 30	
			S.	−67 32					

Observations of the Magnetic Inclination. (Continued.)

Date.	Lat.	Long.	Method employed.	Observed Inclination.	Ship's head.	Corrections. Ship's attraction.	Corrections. Index.	Corrected Inclination.	Remarks.
1840.	° ′	° ′		° ′		′	′	° ′	
Apr. 29.	−46 28	52 24	Direct.	−67 11	s.w. by w.	−11	−2·0	−67 29	
			S.	−67 21					
30.	−46 17	52 04	Direct.	−66 20	s.s.w.	−45	−2·0	−67 10	
			S.	−66 27					
May 1.	−46 25	52 01	Direct.	−66 26	s. by E. ½ E.	−47	−2·0	−67 30	
			S.	−66 39					
			S.N.	−66 40					
			N.	−67 00					
2.	−46 57	55 34	Direct.	−67 37	s.E.	−26	−2·0	−68 12	
			S.	−67 51					
3.	−47 19	59 10	Direct.	−68 19	s.E.	−27	−2·0	−68 42	
			S.	−68 27					
			S.N.	−67 59					
			N.	−68 09					
4.	−47 40	62 25	Direct.	−69 13	s.E.	−28	−2·0	−69 37	
			S.	−69 02					
7.	−48 36	69 20	Direct.	−71 23	N.N.W.	+69	−2·0	−70 12	
			S.	−71 36					
8.	−48 36	69 07	Direct.	−69 12	s.w. by s.	−42	−2·0		
			S.	−69 25					
11.	−48 24	69 44	Direct.	−69 19	s.w.by w.½w.	−08	−2·0	−69 33	
			S.	−69 28					
12.	−48 40	68 58	Direct.	−71 47	N.	−72	−2·0	−71 35	
			S.	−72 03					
			Direct.	−69 46	s.w.by w.½w.	−08	−2·0		
			S.	−69 59					

Abstract of Observations of the Magnetic Force between the Cape of Good Hope and Kerguelen Island, made in Her Majesty's Ships Erebus and Terror in 1840*.

Position. Lat.	Position. Long.	Intensity. Cape = 0·981.	Intensity. Cape = 1·000.	Position. Lat.	Position. Long.	Intensity. Cape = 0·981.	Intensity. Cape = 1·000.
° ′	° ′			° ′	° ′		
−34 11	18 26	0·981	1·000†	−43 07	28 43	1·134	1·157
−37 44	16 36	0·983	1·003	−47 00	38 48	1·170	1·193
−35 14	18 27	0·984	1·004	−45 44	34 16	1·171	1·194
−36 04	19 19	0·988	1·008	−46 45	40 05	1·183	1·206
−37 16	17 24	0·989	1·009	−47 00	37 14	1·186	1·209
−36 16	20 04	0·995	1·015	−47 00	43 48	1·230	1·255
−36 52	18 25	0·996	1·016	−46 46	42 41	1·232	1·257
−36 11	20 42	0·997	1·017	−47 50	45 20	1·261	1·286
−35 48	18 47	0·998	1·018	−47 01	46 10	1·269	1·294
−38 47	17 00	0·999	1·019	−46 41	50 52	1·277	1·302
−36 35	21 20	1·010	1·030	−46 28	52 43	1·288	1·316
−38 58	17 26	1·020	1·040	−46 29	52 26	1·314	1·340
−40 05	20 38	1·021	1·041	−46 25	52 01	1·323	1·349
−40 45	19 20	1·036	1·057	−46 57	55 39	1·326	1·352
−38 13	21 30	1·045	1·066	−46 18	52 04	1·328	1·354
−42 40	22 02	1·058	1·079	−47 19	59 10	1·377	1·404
−41 24	25 00	1·063	1·084	−47 41	62 59	1·459	1·487
−42 56	23 12	1·073	1·094	−48 41	68 54	1·465	1·493
−40 29	22 22	1·079	1·100	−48 41	68 54	1·471	1·499‡
−41 58	26 38	1·088	1·110	−48 39	68 57	1·488	1·517
−44 28	24 55	1·096	1·118	−48 36	69 07	1·489	1·518
−46 41	29 00	1·122	1·144	−48 36	69 21	1·490	1·520
−46 00	26 12	1·128	1·150	−48 30	69 52	1·497	1·527
−44 19	31 06	1·131	1·154				

* Philosophical Transactions, 1842, p. 41. † On shore in Simon's Bay. ‡ On shore at Kerguelen Island.